SAMSUNG

FIXED WIRELESS PHONE

SCW-F200

SERVICE *Manual*

FIXED WIRELESS PHONE

CONTENTS

1. Specification
2. NAM Programming
3. Data Transfer
4. Setup Method
5. Circuit Description
6. Troubleshooting
7. Exploded Views and Parts List
8. PCB Diagrams
9. Electrical Parts List
10. Block & Circuit Diagrams

Samsung Electronics Co.,Ltd.
GH68-60683A

2. NAM Programming

2.1 Switching the NAM(Numeric Assignment Module) writing mode

If you performs NAM writing mode, you have to enter the password, '4, 7, *, 8, 6, 9, #, 0, 8, #, 9'.

Keypads using in NAM writing mode are as follows :

0~9 : numberic keys

＊, # : Use to specify the variable which include several value.

VOLUME KEY : Use to switch the next item

CLR : Use to retouch a wrong digit

HOOK ON : Use to end a NAM writing mode

STO : Use to store data and switching the next function

RCL : Use to swich the last menu

Caution

-If you enter the NAM progrm mode, the last data displays on screen . When you need not change the data, press VOLUME key to go to the next item.

-You can modify the data by entering a new data. And if you enter a wrong digit, press CLR to delete the last digit.

-If you enter a wrong digit in the middle of NAM entering, continue to enter the next digits. After that check and modify the data using volume key.

- While you check the data using volume, you can store the data by pressing STO key.

- When you enter the NAM, as there are necessary information enter the phone number and LOCK code and press STO key.

When you enter NAM programming, display following three items.

1 GENERAL ; Display the variable used commonly NAM.

2 Setup NAM ; Display the variable of CDMA used commonly when you select NAM.

If you don't store the data by pressing STO key after modifying as explains, the data does not change.
You can check the data by pressing VOLUME key without changing the data.

2-2 Explaination about each item

2-2-1 GENERAL

When swiching the next item, press volume or STO key. (When you press STO key, store entered data.)

ESN (Electronic serial number) : In Service Program, current ESN cannot be modifyed and entered but displayed. If you want to modify ESN, special ESN Write Program is needed. For more details, refer to 'ESN Writer manual'

CAI version (common Air Interface version) : The version of the Common Air Interface supported by the mobile. Default setting is 2, CAI Version is not reset by user.

SCM (Station Class Mark) : Station Class Mark(SCM) displays the power class, transmission, slotted, dual mode. SCM is not reset by user.

Lock Code : Default lock cord is 0000. It can be entered from 0000 to 9999.

SLOT Mode : Determine the slot mode of the mobile (using Yes-slot mode)
When changing 'YES' or 'NO', press ✻ ◄ or ► #.

Slot Index : Determine the solt mode index on slot mode the mobile.
The extent of index is from 0 to 9. The bigger the index of set, the longer sleeping time. The sleeping time is longer the more power is saved. Default setting is 2.

2-2-2 Setup NAM

When you swich the next item, press volume or STO key. (If you press STO key, store the entered variable).

IMSI_MCC : Enter Mobile Country Code Default setting is 000.

IMSI_MNC : Enter Mobile Network Code Default setting is 00.

CDMA TEL NO : It is telephone number for CDMA
CDMA Pref : Select preferred system in using CDMA.
Home only, A only, A pref, B only, B pref.

CDMA ACCOLC : CDMA ACCESS OVERLOAD CLASS Default setting is 0.

Pchn Sys A : This is preferred system in using A system. OOO set 779, OOO set 0.

Pchn Sys B : This is preferred system in using B system. Default setting of OOO is 779 channel. Default setting of OOO is 486 channel.

Schn Sys A : This is the second preferred system in using A system. OOO set 738, OOO set 0.

Schn Sys B : This is the second preferred system in using B system. Default setting of OOO is 738 channel. Default setting of OOO is 568 channel.

CD Acq SID 1~CD Acq SID 6 : CDMA Acquisition SID. Enables you to set up to six SIDs. Default setting is 0, ranges from 0 to 32,767.

CD lock SID 1~CD lock SID 6 : CDMA lock SID
Enables you to set up to six SIDs.
Default setting is 0, ranges from 0 to 32767

CDMA Home SID : CDMA home SID Default setting is 'YES'.
Specify the Autonomous requisition in the home system.

SID #1 : (SID,NID) This is the first SID in using list.

NID #1 : (SID,NID) This is the first NID in using list.

SID #2 : (SID,NID) This is the second SID in using list.

NID #2 : (SID,NID) This is the second NID in using list.

SID #3 : (SID,NID) This is the third SID in using list

SID #3 : (SID,NID) This is the third NID in using list

SID #4 : (SID,NID) This is the fourth SID in using list

SID #4 : (SID,NID) This is the fourth NID in using list

SID #5 : (SID,NID) This is the fifth SID in using list

SID #5 : (SID,NID) This is the fifth NID in using list

The mobile determines the roaming status.

SID, NID list of OOOO and OOO is follingxzd

OOO : (2222, 1) (2222, 2) (2222, 3) (2222, 15) (0, 0)

OOO : (1700, 1) (1700, 2) 1700, 3) (1700, 15) (0, 0)

2-3 Setting Up NAM

LCD Display	Key in	Function
47*809#08#9	**47✳869#08#9**	-selects NAM programming
NAM Program 1:General 2:Setup NAM	**1**	-choose 'GENERAL.'
ESN B00000000	Volume ▲	Electronic Serial Number of the phone.
CAI version 2	Volume ▲	The version of the Common Air Interface supported by the mobile.
SCM 01101010	Volume ▲	Station Class Mark displays the power class (bit 0~1), transmission (bit2), slotted (bit5), dual mode (bit6).
Lock Code 0000	(0000) 4-digit code **STO**	Four-digit number supplied by the user which enables electronic locking of the phone.
Slot Mode Yes	✳ or # **STO**	Enables slot mode.
Slot Index 2	**0 - 7** **STO**	Slot mode index. Specifies the duration and frequency of times that the mobile checks the paging channel. The higher the value, the less often the mobile looks at the paging channel, and the more power is saved.
Pref NAM... Digital pref	✳ or # **STO**	Preferred system selection for NAM. Up to four NAMs are allowed for the phone. This lists one of the four NAMs and allows you to program both the FM and CDMA settings.

LCD Display	Key in	Function
IMSI_MCC 000	number **STO**	International Mobile Station Identity Mobile Country Code.
IMSI_MNC 00	number **STO**	International Mobile Station Identity Mobile Network Code.
CDMA TEL NO. 987654321	phone number **STO**	CDMA phone number.
CDMA pref... B only	✳ or # **STO**	Preferred system selection.
CDMA ACCOLC 0	class number **STO**	CDMA Access Overload Class. This two-digit number specifies the level of priority assigned to the mobile for accessing the system. Ranges from 0 to 15.
Pchn Sys A 0	channel number **STO**	Primary CDMA channel for the A carrier. Ranges from 0 to 1,023. 0 indicates no channel.
Pchn Sys B 486	channel number **STO**	Primary CDMA channel for the B carrier. Ranges from 0 to 1,023. 0 indicates no channel.
Pchn Sys A 0	channel number **STO**	Secondary CDMA channel for the A carrier. Suggested setting is 0: ranges from 0 to 1,023.
Schn Sys B 568	channel number **STO**	Secondary CDMA channel for the B carrier. Suggested setting is 0: ranges from 0 to 1,023.
CD Acq SID (1-6) 0	ID number **STO**	CDMA Acquisition System ID. Enables you to set the phone to acquire up to six SIDs in the CDMA mode. If you enter '0' for any SID, the program assumes that you have no more numbers to store. Default setting is 0: ranges from 0 to 32,767: up to six SIDs.
CD lockSID (1-6) 0	ID number **STO**	CDMA Lock System ID. Enable you to specify up to six SIDs that the phone will be prohibited from acquiring in CDMA mode. If all six SIDs are set to zero, no lock restrictions will be in effect and the phone can acquire all SIDs. Default setting is 0: ranges from 0 to 32,767 up to six SIDs.
CDMA HomeSID Yes	✳ or # **STO**	CDMA Home System ID. Enables the phone to allow mobile terminated calls while in the home system. Controls the types of registration allowed for the phone.

LCD Display	Key in	Function
CDMA fSID Yes	✳ or # **STO**	CDMA foreign System ID. Enables the phone to allow mobile terminated calls while in a foreign system. Controls the types of registration allowed for the phone.
CDMA fNID Yes	✳ or # **STO**	CDMA foreign Network ID. Enables the phone to allow mobile terminated calls while in a foreign system and foreign network ID. Controls the types of registration allowed for the phone.
SID #1 1700	number **STO**	System Identification Number. Controls how the phone acquires different systems. Determines the roaming status for the mobile. All SIDs range from 0 to 32,767: a 0 setting for the SID signifies that it is not active.
NID #1 1	number **STO**	Network Identification Number. Controls how the phone acquires different systems, and is set and specified in conjunction with each SID (e.g., SID #1, NID #1). Determines the roaming status for the mobile. All SIDs range from 0 to 65,535: a 0 setting for one NID signifies that it is not active.
SID #2 1700	number **STO**	See SID #1.
SID #2 1700	number **STO**	See NID #1.
SID #2 1700	number **STO**	See SID #1.
NID #3 3	number **STO**	See NID #1.
SID #4 1700	number **STO**	See SID #1.
NID #4 15	number **STO**	See NID #1.
SID #5 0	number **STO**	See SID #1.
NID #5 0	number **STO**	See NID #1.

MEMO

1. Specification

1-1 General

Frequency Range Transmitter Receiver	Digital Mode : 824.64 ~ 848.37 MHz : 869.64 ~ 893.37 MHz	
Channel Spacing	: 1.23 MHz	30 kHz
Number of Channels	: 20 FA	832 CHs
Duplex Spacing	: 45 MHz	
Frequency Stability	: ± 2.5 ppm (– 22 °F ~ £ 140 °F : – 30 °C ~ £ 60 °C)	
Operating Temperature	: – 4 °F ~ 122 °F (– 20 °C ~ £ 50 °C)	
Operating Voltage Battery Adapter	 : 5.0V DC (± 10 %) : 11.0V DC (± 20 %)	
Size and Weight w/ battery	 :218 ° 210 ° 73 mm 1183 gr	

Operating Time		w/ battery
Digital mode	Standby Time (slot index 2)	51~ 75 hours
	Talk Time	6 hours

1-2 Digital Mode

Waveform Quality	: above 0.944
Time Reference	: within ± 1uS
RX Sensitivity	: − 104 dBm, FER = within 0.5%
Dynamic Range	: − 104 dBm ~ − 25 dBm, FER = within 0.5%
TX Output Power	: Maximum 320 mW (25dBm)
TX Frequency Deviation	: within ± 300 Hz
Occupied Band Width	: 1.32 MHz
TX Conducted Spurious Emissions	: 900 kHz below − 42 dBc / 30 kHz : 1.98 MHz below − 54 dBc / 30 kHz
Minimum TX Power Control	: below − 50 dBm
Open Loop Power Control	: − 25 dBm : − 57.0 dBm ~ − 38.5 dBm − 65 dBm : − 17.5 dBm ~ £ 1.5 dBm − 104 dBm : £ 18.0 dBm ~ £ 30.0 dBm
Standby Output Power	: below − 61 dBm
Closed Loop TX Power Control Range	: Test 1 beyond ± 24 dB Test 2 0 mS ~ 2.5 mS Test 3 beyond ± 24 dB Test 4 beyond ± 24 dB Test 5 beyond ± 24 dB

MSC Transmitter Frequency

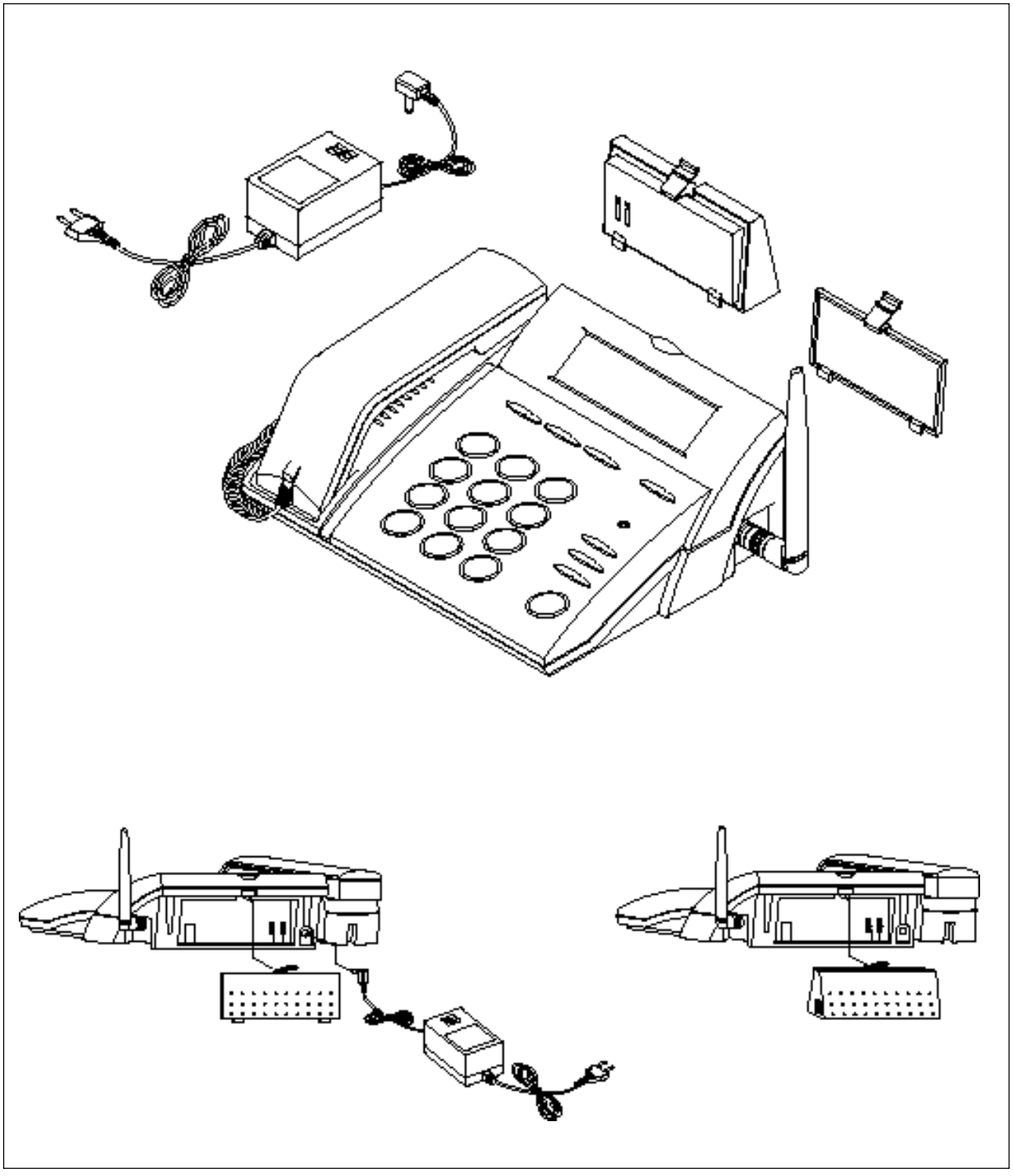
FA NO.	CH. NO.	CENTER FREQUENCY	FA NO.	CH. NO.	CENTER FREQUENCY
1	1011	824.640MHz	11	404	837.120MHz
2	29	825.870MHz	12	445	838.350MHz
3	70	827.100MHz	13	486	839.580MHz
4	111	828.330MHz	14	527	840.810MHz
5	152	829.560MHz	15	568	842.040MHz
6	193	830.790MHz	16	609	843.270MHz
7	234	832.020MHz	17	650	844.270MHz
8	275	833.250MHz	18	697	845.910MHz
9	316	834.480MHz	19	738	847.140MHz
10	363	835.890MHz	20	779	848.370MHz

MSC Receiver Frequency

FA NO.	CH. NO.	CENTER FREQUENCY	FA NO.	CH. NO.	CENTER FREQUENCY
1	1011	869.640MHz	11	404	882.120MHz
2	29	870.870MHz	12	445	883.350MHz
3	70	872.100MHz	13	486	884.580MHz
4	111	873.330MHz	14	527	885.810MHz
5	152	874.560MHz	15	568	887.040MHz
6	193	875.790MHz	16	609	888.270MHz
7	234	877.020MHz	17	650	889.270MHz
8	275	878.250MHz	18	697	890.910MHz
9	316	879.480MHz	19	738	892.140MHz
10	363	880.890MHz	20	779	893.370MHz

MEMO

4. Setup Method



MEMO

6. Circuit Description

6-1 Logic Section

6-1-1 Power Supply

With the battery installed on the phone and by pressing the PWR key, the VBATT and ON_SW signals will be connected. This will turn on Q102 (2SC4081BR) and will drive DC-DC converter (U123) to output 5.0V. This in turn will be supplied to pin 6 of regulators (U121 and U122), thus releasing them from the shut-down state to output regulated 3.3V.

The VBATT applied to ON_SW will turn on Q103 (DTC144EE) resulting in the signal ON_SW_SENSE to change state from HIGH to LOW. This will allow MSM to send out PS_HOLD (logical HIGH) to turn on Q102 even after the PWR key is released.

The voltage (+3.3V) from U121 is used in the digital parts of MSM and BBA. The voltage (+3.3AV) from U122 is used in the analog part of BBA. The voltage from U124 (output of 5V) is used for the audio circuitry.

6-1-2 Logic Part

The Logic part consists of internal CPU of MSM, RAM, ROM and EEPROM. The MSM receives TCXO and CHIPX8 clock signals from the BBA and controls the phone during the CDMA and the FM mode. The major components are as follows:

- CPU : INTEL 80186 core
- FROM : U126 (MBM29LV800T) - 8MBIT FLASH ROM
- SRAM : U127 (KM68V2000I) - 2MBIT STATIC RAM
- EEPROM : U113 (AT24C128) - 128KBIT SERIAL EEPROM

CPU

INTEL 80186 CMOS type 16-bit microprocessor is used for the main processing. The CPU controls all the circuitry. For the CPU clock, 27MHz resonator is used.

FLASH ROM

One 8 MBIT FROM is used to store the terminal's program. Using the down-loading program, the program can be changed even after the terminal is fully assembled.

SRAM

One 2 MBIT SRAM is used to store the internal flag information, call processing data, and timer data.

EEPROM

One 128 KBIT EEPROM is used to store ESN, NAM, power level, volume level, and telephone number.

KEYPAD

For key recognition, key matrix is setup using SCAN0-6 of STORE signals and KEY0-3 of input ports of MSM. Eight LEDs and backlight circuitry are included in the keypad for easy operation in the dark.

LCD MODULE

LCD module contains a controller which will display the information onto the LCD by 8-bit data from the MSM. It also consists a DC-DC converter to supply -3.5V for fine view angle and LCD reflector to improve the display efficiency.

6-1-3 Baseband Part

MOBILE SYSTEM MODEM (MSM)

The MSM equipped with the INTEL 80186 CPU core is an important component of the CDMA cellular phone. The MSM comes in a 176 pins TQFP package. The interface block diagram is shown on page 6-3.

MICROPROCESSOR INTERFACE

The interface circuitry consists of reset circuit, address bus (A0-A19), data bus (AD0-AD15), and memory controls (ALE, DT_R, HWR/, LWR/, RAM_CS/, ROM_CS).

INPUT CLOCK

- CPU clock: 27 MHz
- TXCO/4 (pin 34): 4.92 MHz. This clock signal from the BBA is the reference clock for the MSM except in CDMA mode.
- CHIPX8 : 9.8304 MHz. The reference clock used during the CDMA mode.

BBA INTERFACE

CDMA, FM Data Interface

- TXIQDATA0-7 (pins 24-32) : TX data bus used during both CDMA and FM mode.
- C_RX_IDATA0-3 (pins 16-20) and C_RX_QDATA0-3 (pins 12-15) : RX data bus used during CDMA mode.
- FM_RX_IDATA (pin 7) and FM_RX_QDATA (pin 8) : RX data bus used during FM mode.

Clock

- TX_CLK (pin 22), TX_CLK/(pin 23) : Analog to Digital Converter (ADC) reference clock used in TX mode.
- CHIPX8 : ADC reference clock used in CDMA RX mode.
- FMCLK : Reference clock in FM RX mode.

ADC Interface

ADC_CLK (pin 3), ADC_ENABLE (pin 1) and ADC_DATA (pin 2) are required to control the internal ADC in the BBA.

Data Port Interface

Includes the UART. Also, supports Diagnostic Monitor (DM) and HP equipment interface.

CODEC Interface

The MSM outputs 2.048 MHz PCM_CLK (pin 19) and 8 KHz CODEC_SYNC (pins 16,20) to the CODEC (U117). The voice PCM data from the MSM (U101) PCM_DIN (pin135) is compressed into 8KHz by QCELP algorithm in the CDMA mode. In FM mode, the data is processed by D_FM.

RF Interface

TX : TX_AGC_ADJ (pin 35) port is used to control the TX power level and PA_ON (pin 44) signal is used to control the power amplifier.

RX : AGC_REF (pin 36) port is used to control the RX gain and TRK_LO_ADJ (pin 45) is used to compensate the TCXO clock.

General Purpose I/O Register Pins

Input/output ports to control external devices.

Power Down Control

When the IDLE/ signal turns LOW, only the TX sections will be disabled. If both the IDLE/ and SLEEP/ changes to LOW, all the pins except for the TXCO is disabled.

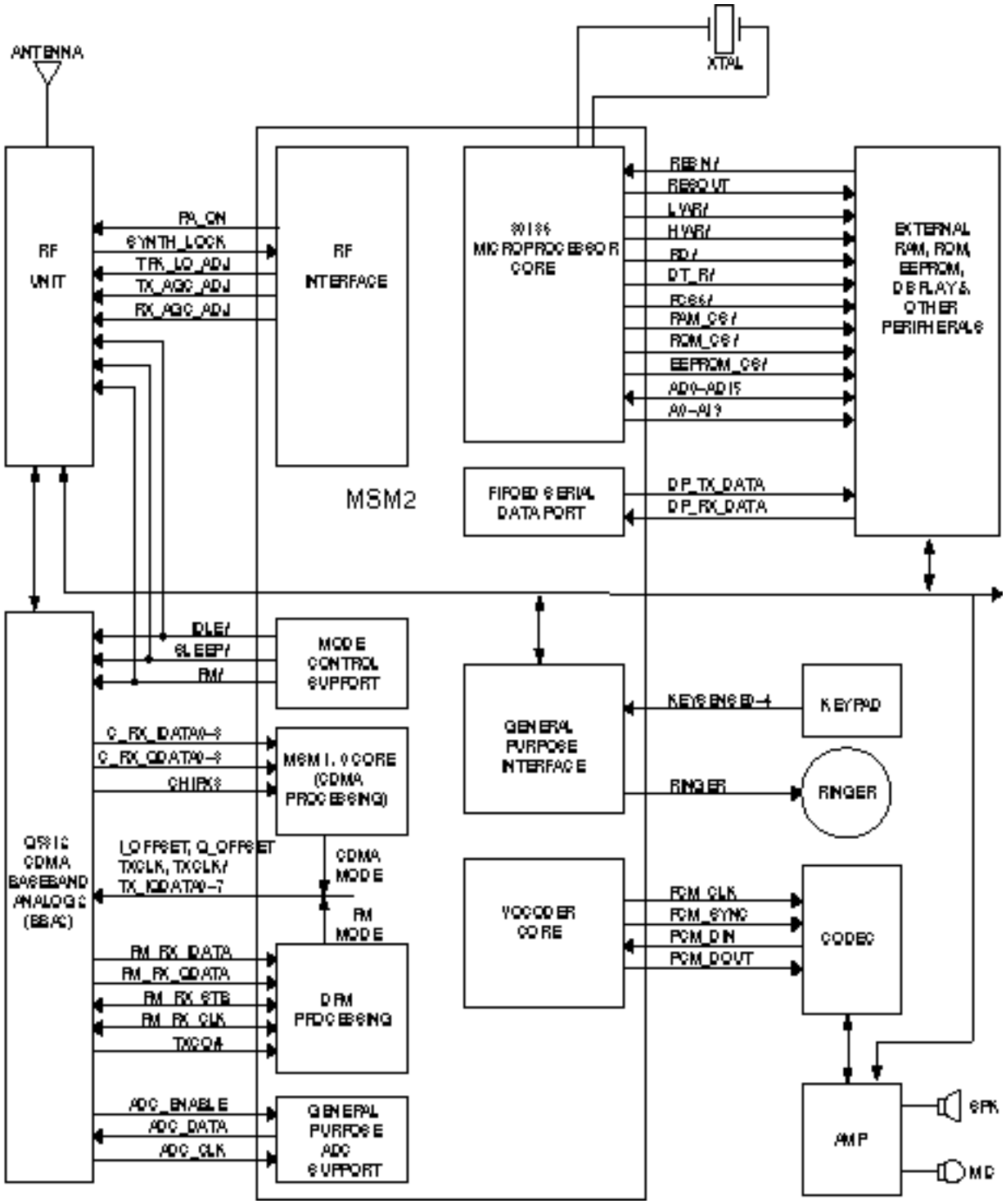


Figure 6-1 Baseband Block Diagram

6-1-4 Audio Part

TX AUDIO PATH

The voice signal output from microphone is filtered and amplified by the internal OP-AMP and is converted to PCM data by the CODEC (U117). This signal is then applied to the MSM (U101)'s internal vocoder.

RX AUDIO PATH

The PCM data out from the MSM is converted to audio signal by ADC of CODEC (U117), is then amplified by the speaker amplifier (U111) to be sent to the speaker unit.

FM TX PATH

Pre-Emphasis Circuit

The circuit features +6dB/oct to reduce signal loss and noise in Tx path.

Compressor

The compressor features 2:1 level to reduce signal loss and noise in Tx path. The zero crossing level of the compressor is ±2.9 kHz/dev, attack time is 3 mS, and release time is 13.5 mS.

Limiter

The limiter performs to cut ±0.53 Vp-p or higher audio signal level so that the FM frequency deviation is not over ±12kHz/dev. The function is used to avoid confusion over phone line. LPF is used to reduce a specific high frequency of limited signal.

RX AUDIO PATH

De-Emphasis Circuit

This circuit is 1st LPF featuring -6dB/oct to reduce signal loss and noise in Rx path.

Expander

The expander features 1:2 level to reduce signal loss and noise in Rx path. The zero crossing level of the expander is ±2.9 kHz/dev, attack time is 3 mS, and release time is 13.5 mS.

Volume Adjust

Volume can be adjusted up to 4 steps for the user to obtain a proper loudness of received signal.

6-1-5 TX WBD, ST, And SAT

These signals are generated from MSM. The modulation level of TX WBD and ST is ±8kHz/dev, and SAT is ±2kHz/dev.

6-1-6 Buzzer Driving Circuitry

Buzzer generates alert tone. When the buzzer receives the timer signal from the MSM, it generates alert tone. The buzzer level is adjusted by the alert signal's period generated from the MSM timer.

6-1-7 Key Tone Generator

Ringer signal (pin 49) out from MSM (U101) is passed through 2 serial LPF consisting of R141, C145, R145, and C142, amplified at the speaker amp (U111), and comes out to speaker. In hands-free mode, the key tone is applied to RX audio line through the LPF and C153, R142.

6-2 Receiver Section

LOW NOISE AMPLIFIER (LNA)

The low noise amplifier featuring 1.5dB and 16 dB gain amplifies a weak signal received from the base station to obtain the optimum signal level.

DOWN CONVERTER (MIXER)

First local signal is applied to this down converter. The down converter transfers the signal amplified at the LNA into 85.38 MHz IF signal. 85 MHz IF signal is made by subtracting 881 ±12.5 MHz RF signal from 966 ±12.5MHz first local signal.

RX IF AUTOMATIC GAIN CONTROLLER (AGC) AMP

85.38 MHz IF signal is applied to IF AGC amp, the IF AGC output level is applied to BBA (Baseband Analog ASIC). The IF AGC amp (U302) keep the signal at a constant level by controlling the gain. Dynamic range is 90 dB, up gain +45dB, and down gain -45dB.

RF BAND PASS FILTER (BPF)

The RF BPF (F302) accepts only a specific frequency (881 ±12.5MHz) from the signal received from the mobile station. The band width is 25 MHz.

IF SAW BAND PASS FILTER FOR AMPS

IF SAW BPF (F304) is used for AMPS system having 30 kHz channel spacing and ±15 kHz band width. The filter also eliminates the image product generated at the mixer.

IF SAW BAND PASS FILTER FOR CDMA

IF SAW BPF (F303) is used for CDMA system having 1.23 MHz wide band and ±630 kHz band width. The filter also eliminates the image product generated at the mixer.

BUFFER

Buffer (Q342) amplifies signal to be applied to the local input of the down converter (U301) when a phase is locked between VCO (U341) and PLL IC (U342).

VOLTAGE CONTROLLED OSCILLATOR

The VCO (U341) generates the signal having 966 MHz center frequency and ±12.5 MHz deviation with the voltage control. PLL IC (U342) controls this signal.

PHASE LOCKED LOOP (PLL)

Input reference frequency is generated at VC_TCXO (U343) and the divided signal is generated at VCO (U341). PLL compares the two signals and generates the desired signal with a pre-programmed counter which controls voltage.

VOLTAGE CONTROLLED TEMPERATURE COMPENSATED CRYSTAL OSCILLATOR

It provides 19.68 MHz reference frequency to the mobile main set. A correct frequency tuning is made by the voltage control.

THERMISTOR

The thermistor (U371) detects temperature. It is used to compensate active component characteristics due to the temperature difference.

DUPLEXER

Duplexer (F301) controls to transmit through the antenna only the signals within acceptable Tx frequency range (836 ±12.5 MHz) and to receive through the antenna only the signals within acceptable Rx frequency range (881 ±12.5 MHz). It also matches LNA (U301) input in receiving part and PA output in transmitter part with the antenna.

POWER SUPPLY REGULATOR

The power supply regulator (U381, U382) generates a regulated power (3.6VR).

ANTENNA

Antenna (ANT1) allows signals to send to receive from the base station.

6-3 Transmitter Section

BASEBAND ANALOG ASIC (BBA)

BBA (U401) consists of ADC, DAC, LPF (FM/CDMA), divider, VCO, logic control circuit, PLL, and mixer.

BBA performs a specific function between RF part and logic part, with MSM. The IF signal out from Rx IF AGC amp is secondly converted through the down-converter. The signal passes through the CDMA or FM filter, converts to digital signal through ADC, then is sent to MSM. The digital signal out from MSM converts to analog signal through DAC. The analog signal converts to the IF signal through each filter and the up-converter.

POWER AMP MODULE

Power Amp module (U467) amplifies signal (28 dB Gain) to be sent out to the base station through the antenna .

UP CONVERTER (MIXER)

The up-converter (U461) receives the first local signal to generate 836 ±12.5 MHz from the signal controlled by TX IF AGC amp (U460). 836 ±12.5 MHz signal comes out from the mixer output by subtracting 130 MHz IF signal from 966 ±12.5 MHz first local signal. The driver amp and this up-converter are packaged into one in U461.

IF AUTOMATIC GAIN CONTROLLER AMP

The signal out to the base station should be a constant level. The TX IF AGC amp (U460) controls power to keep the signal at a constant level. Dynamic range is 85 dB, up gain +40dB, and down gain -45dB.

RF BAND PASS FILTER (BPF)

The RF BPF (F451) accepts only a specific frequency (836 ±12.5MHz) to send it out to the base station. The band width is 25 MHz.

POWER SUPPLY SWITCHING

Power supply switching (Q483) turns on TX_POWER when the phone is in traffic mode and supplies power to the circuits.

ISOLATOR

Isolator (U468) is used to reduce a reflected signal to protect the power amp module from being damaged.

POWER SUPPLY REGULATOR

The power supply regulator (U482, U483) supply a regulated power to each part of transmitter. U483 supplies 4.7V to TX mixer (U461) and OP amp (U463). U482 supplies 3.6 V to TX IF AGC amp (U460).

6-4 Rapid Desk-Top Charger

Rapid Charger, DTC58 is composed of power supply part and control part.

6-4-1 Power Supply Part (Flyback type SMPS circuit)

AC INPUT

AC input protection circuit and rectifier circuit

AC power through the AC plug is rectifiered to DC power of high voltage through the BD1 and C2. MOV1 is used by protection circuit from AC power surge. F1 is fuse to prevent over current. C1 and LF1 is EMI noise protection filter of switching power.

Switching controller and transformer

IC1 supplies constant voltage and constant current to secondary circuit through the transformer. D1, D2 absorbs the reverse voltage when transformer winding turns off.

SECONDARY POWER

Output constant voltage circuit : HIC, IC7, VR1

The HIC detects output voltage and compares it with reference voltage in HIC. The error is FED to primary circuit by IC7A. The feeback error is converted to current by IC7B and D3. The current controlls IC1.

Secondary rectifier circuit : D4, D5, C8, C11

The secondary AC output of transformor is rectified to DC voltage.

Secondary filter circuit : L1, L2, C9, C12

It minimizes the high frequency ripple noise, which is caused by primary oscilation.

Secondary DC/DC converter circuit : Q2, D8, L3, C19

It changes the DC output voltage to 8.4V through step-down chopper method.

Reverse current protection circuit : D6, D7

When power is off, it protects the reverse flow of current from battery pack.

6-4-2 Control Part

MICOM CONTROLLER : HIC

HIC is include u-COM to controlled whole charging system and include following internal circuit :
-General Input/Output port
-A/D converter
-Reset delay circuit (Power on delay)
-Timer

It is carried following functions :
-Battery Recognition
-Charging termination condition detection
-Output short detection and output protection
-Temperature detection

BATTERY RECOGNITION CIRCUIT : HIC

Battery identity detection determined to voltage detection battery internal between C/F and GND.

CURRENT DETECTION CIRCUIT : R5, R6, R11, R12, HIC

Battery charging current is changed voltage through R5, R6, R11, R12. This voltage inputed u-COM to 16 times amplifiered through HIC.

VOLTAGE DETECTION CIRCUIT : HIC

u-COM A / D through HIC pin 12, 13 detected voltage.

BATTERY TEMPERATURE DETECTION CIRCUIT : HIC, TH1

Battery temperature detection determined temperature by ues of thermistor registor variation of THI by HIC.

CURRENT LIMIT CIRCUIT : HIC

When soft-change, current detection circuit limited current flow to battery, reference voltage more than detected current, detected current and HIC internal reference voltage.

6-5 Hands-Free Kit

6-5-1 Charging Circuit

A constant voltage is used for the hands-free kit. This circuit converts DC 12V input current to 8.4V DC to charge the battery. When the battery is fully charged, the charge current drops and the circuit operates as a constant voltage.

6-5-2 u-Processor

Micro processor controls charging power and charging current to protect the phone. It also allows to communicate with a HHP, and to convert from hands-free mode to private mode, and vice verse. It adjusts speaker volume at 8 steps and attenuates echo and noise occurred during conversation.

6-5-3 Speaker circuit

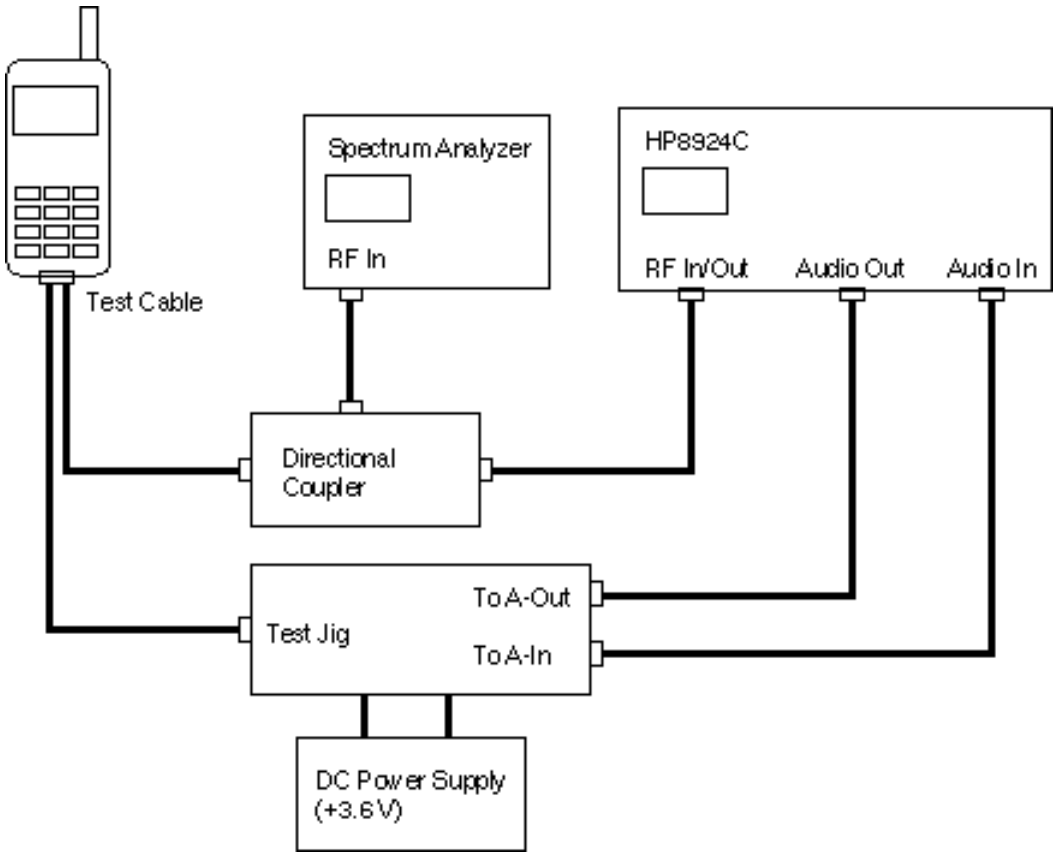
This circuit eliminates HHP noise, and controls the sound quality and speaker volume using analog C-mos IC which checks the speaker signal up to 8 steps. 5W audio amplifier amplifies the speaker signal.

6-5-4 Microphone Circuit

This circuit separates ground to eliminate the noise occurring from the HHP antenna and microphone. u-processor controls this circuit to attenuate echo which may occur in Land side.

6-6 Test Procedure

6-6-1 Configuration of Test



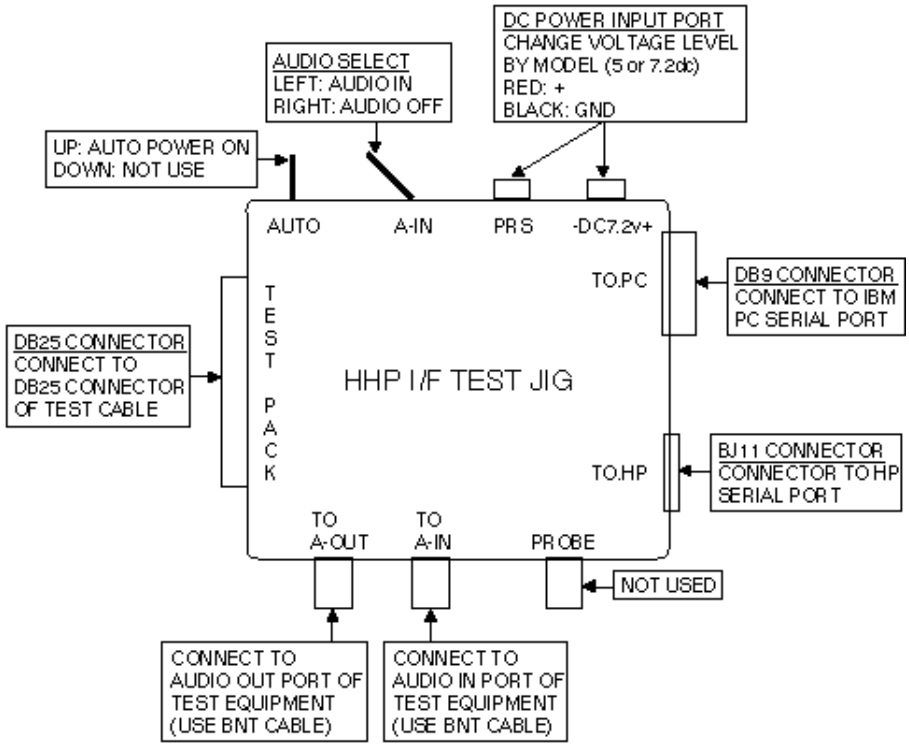
Items needed to purchase from SAMSUNG.

Items	Parts #	Remark
RF Test Cable	GH97-00687A	
Test JIG (RF Interface Pack Ass'y)	GH80-10502A	Including 1. Power Cable (Black, Red) 2. 9-pin RS232 Data Cable
DM Cable	GH39-30515A	

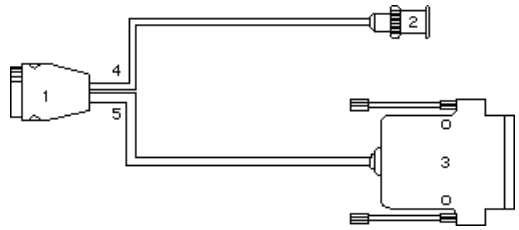
6-6-2 List of Equipment

- DC Power Supply
- Test Jig
- Test Cable
- CDMA Mobile Station Test Set — HP8924C, HP83236A, CMD-80 etc
- Spectrum Analyzer (include CDMA Test Mode) — HP8596E

TEST JIG



TEST CABLE

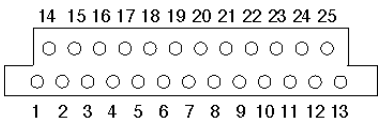


Test Cable Connections

1	Plug Connect to SCH-210
2	BNC Connector (RF)
3	Dsub 25Pin Connector (DATA)
4	RF Cable
5	Data Cable

Dsub 25 Pin Connector Pin Description
(Test Cable 1, Back Side)

Data Description	Dsub CONN. Pin No.
Vcc	4, 5, 6
GND	13, 23, 24, 25
PW ON / OFF	7
TX Audio	10
TX Data	22
RX Audio	12
RX DATA	21
RSSI	8



6-7 Test Command Table

Command No. (OP, AB, RB)	Command SW Name	Description
01(1F, 0, 0)	T_SUSPEND_I	Terminate the normal mode, enter to the test mode.
02(3F, 0, 0)	T_RESTART_I	Terminate the test mode, enter to the normal mode.
03(FD, 0, 0)	T_SAVE_VAL_I	Save value in EEPROM. (Only for Auto test)
04(1D, 0, 1)	T_GET_MODE_I	Get mode. (CDMA or FM) Return value '0' is FM mode, '1' is CDMA mode.
05(1C, 1, 0)	T_SET_MODE I	Set mode to CDMA or FM. (Only for Auto test) '0' is FM mode, '1' is CDMA mode.
06(1E, 0, 0)	T_WRITE_NV_I	Write an EEPROM item. (one of the NV items)
07(81, 0, 0)	T_CARRIERON_I	Turn the carrier on.
08(82, 0, 0)	T_CARRIEROFF_I	Turn the carrier off.
09(83, 4, 0)	T_LOADSYN_I[2)]	Set the synthesizer to the channel specified by ch_ data.
10(84, 1, 0)	T_PWRLEVEL_I[2)]	Set the RF power attenuation to the value specified.
11(85, 0, 0)	T_RXMUTE_I	Mute the receive-audio signal.
12(86, 0, 0)	T_RXUNMUTE_I	Unmute the receive-audio signal.
13(87, 0, 0)	T_TXMUTE_I	Mute the transmit-audio signal.
14(88, 0, 0)	T_TXUNMUTE_I	Unmute the transmit-audio signal.
16(8F, 0, 0)	T_STON_I	Transmit a continuous Signaling Tone (ST).
17(90, 0, 0)	T_STOFF_I	Stop transmit a continuous Signaling Tone.
22(91,96,96)	T_SNDNAM_I[1)]	Display and send NAM information.
23(95, 3, 4)	T_SNDVERSION_I[1)]	Display and return S/W version.
24(9F, 7, 8)	T_SNDESN_I[1)]	Display and return ESN.
25(92, 0, 0)	T_BACKLIGHT_ON_I	Turn on the backlight.
26(93, 0, 0)	T_BACKLIGHT_OFF_I	Turn off the backlight.
27(96, 0, 0)	T_LAMP_ON_I	Turn on the LAMP.
28(97, 0, 0)	T_LAMP_OFF_I	Turn off the LAMP.
29(9A, 5, 0)	T_REBUILD_I	Rebuild EEPROM.
30(9D,16, 0)	T_PLINE_I	Display and return production date.
32(A0, 1, 0)	T_SATON_I[*2)]	Enable the transmission of SAT.
33(A1, 0, 0)	T_SATOFF_I[*]	Disable the transmission of SAT.
34(A2, 0, 0)	T_CDATA_I	Transmit continuous 5-word Reverse CTL CH message.
35(A3, 0, 0)	T_VOLUME_UP_I	Increase value of the last command. (Only for autotest)
36(A4, 0, 0)	T_VOLUME_DOWN_I	Decrease value of the last command. (Only for autotest)
38(A6, 3, 0)	T_VOC_ENC_OFFSET_I	Vocoder ENC offset.
39(A7, 3, 0)	T_VOC_DEC_OFFSET_I	Vocoder DEC offset.

Command No. (OP, AB, RB)	Signal. Name	Description
40(A8, 4, 0)	T_VOC_CDMA_UNITY_GAIN_I	Vocoder ENC offset.
41(A9, 3, 0)	T_VOC_FM_HFRX_UPGAIN_I	Vocoder DEC offset.
42(AA, 1, 0)	T_DTMFON_I[2]	Activate DTMF generator with keycode.
43(AB, 0, 0)	T_DTMFOFF_I	Deactivate DTMF generator.
44(B0, 0, 0)	T_COMPANDORON_I	Enable the compressor and expandor.
45(B1, 0, 0)	T_COMPANDOROF_I	Disable the compressor and expandor.
46(B2, 0, 0)	T_FM_VCLINE_I[*]	Enter Analog voice channel state.
47(B3, 3, 0)	T_FM_AUD_GAIN_I	FM audio gain.
48(B4, 0, 0)	T_VIBRATOR_ON_I	Activate a vibrator.
49(B5, 0, 0)	T_VIBRATOR_OFF_I	Inactivate a vibrator.
50(B6, 0, 4)	T_BATT_TYPE_I	Battery type.
51(B7, 1, 1)	T_BBA_I	BBASIC supplier
52(B9, 2, 2)	T_HW_VERSION_I	HW version
53(BA, 3, 0)	T_CARRIER_I	Target Carrier option.
54(BB, 0, 0)	T_VOC13K_I	Target Service option.
55(BC, 0, 0)	T_EXT_AUDIO_I	External Audio Path On / Off.
57(BC, 0, 0)	T_MIC_ON_I	Mic path on.
58(BD, 0, 0)	T_MIC_OFF_I	Mic path off.
59(BE, 0, 0)	T_ALLPATH_I	Set RX Path, TX path Unmute to Earpiece.
60(BF, 3, 0)	T_FM_TX_GAIN_I[2)3)]	FM TX Audio Gain Control.
61(C0, 3, 0)	T_FM_RX_GAIN_I[2)3)]	FM RX Audio Gain Control.
62(C1, 3, 0)	T_DTMF_VOL_TX_I[2)3)]	FM TX DTMF Gain Control.
63(C2, 3, 0)	T_TX_LIMITER_I[2)3)]	FM TX Limiter Gain Control.
64(C3, 3, 0)	T_FM_SAT_LEVEL_I[2)3)]	FM TX SAT level Control.
65(C4, 3, 0)	T_FM_FREQ_SGAIN_I[2)3)]	FM TX Master Gain Control.
66(C5, 3, 0)	T_FM_ST_GAIN_I[2)3)]	FM TX ST Gain Control.
67(C6, 3, 6)	T_READ_BATT_I[1)]	Reads low batt. Value in Standby, or Talk mode.
68(C8, 0, 3)	T_VBATT1_I[3)]	Set the low battery position in the standby.
69(C9, 0, 3)	T_VBATT2_I[3)]	Set the low battery position in the talking.
70(CA, 3, 0)	T_WRITE_BATT_I[3)3)]	Write low battery Level Value to NVM.
71(D1, 3, 0)	T_CDMA_TXADJ_I[2)]	Change pdm TX AGC in CDMA.
72(D2, 3, 0)	T_FM_TXADJ_I[2)]	Change pdm TX AGC in FM.
73(D3, 1, 0)	T_SET_PA_R_I[2)]	Set PA R1, R0 in CDMA.
74(D4, 3, 0)	T_TXADJ_0DBM_I	Sets tx_agc_adj for fm mode.

Command No. (OP, AB, RB)	Signal. Name	Description
75(D5, 0, 3)	T_READ_RSSI_I[3]	Read a RSSI.
76(D6, 3, 0)	T_WRITE_RSSI_I[3]	Writes RSSI value.
77(D7, 0, 3)	T_READ_TEMP_I	Read Temp.
78(D8, 0, 3)	T_READ_HDET_I	Read High Detect.
79(D9, 1, 0)	T_BUZZER_ON_I[2]	Buzzer On at DTMF 0 key.
80(DA, 0, 0)	T_BUZZER_OFF_I	Buzzer Off.
81(E3, 0, 0)	T_VOC_PCMLPON_I	Play a PCM LOOP BACK.
82(E4, 0, 0)	T_VOC_PCMLPOFF_I	Play off a PCM LOOP BACK.
84(E6, 3, 0)	T_WR_CD_TXLIMIT_I[2)3)]	
85(E7, 0, 0)	T_SPEAKER_ON_I	Turn on the speaker path.
86(E8, 0, 0)	T_SPEAKER_OFF_I	Turn off the speaker path.
87(E9, 0, 0)	T_FM_LOOP_TEST_I	Play a PCM FM loopback.
88(EA, 0, 0)	T_TRK_ADJ_I[3]	FM TRK_LO_ADJ control.
89(EB, 3, 0)	T_CDTRK_ADJ_I	CDMA TRK _LO_ADJ control.
90(F0, 3, 0)	T_FM_HIGH_CH_PWR_I	Compensated value for high chan PWR.
91(F0, 3, 0)	T_FM_LOW_CH_PWR_I	Compensated value for low chan PWR.
92(F2, 3, 0)	T_FM_TX_PWR_2_I[2)3)]	Setting the volume for Power Level 2.
93(F3, 3, 0)	T_FM_TX_PWR_3_I[2)3)]	Setting the volume for Power Level 3.
94(F4, 3, 0)	T_FM_TX_PWR_4_I[2)3)]	Setting the volume for Power Level 4.
95(F5, 3, 0)	T_FM_TX_PWR_5_I[2)3)]	Setting the volume for Power Level 5.
96(F6, 3, 0)	T_FM_TX_PWR_6_I[2)3)]	Setting the volume for Power Level 6.
97(F7, 3, 0)	T_FM_TX_PWR_7_I[2)3)]	Setting the volume for Power Level 7.
99(F9, 3, 0)	T_FM_MOST_CH_PWR_I	Compensated value for Power Level 2.
100(FF, 3, 0)	T_MAX_I	Compensated value for Most chan PWR.

[1)] The AB (Input Argument Byte Number) values of these commands are used only in the manual test. In automatic test mode, the AB is regarded as 0.

[2)] You can assign the value for these commands. If the AB value is assigned without argument, the test is achieved with the value stored in EEPROM.

[3)] After you get a desired test value by performing these commands, if you want to save the value into EEPROM, use T-SAVE-VAL-I command to store the test value into the corresponding position.

* OP: Operation Command Number
  AB: Input Argument Byte Number
  RB: Return Byte Number
* SAT 32, 33 are not operating in MSM2 CHIP test
* 46 command is required in Rx, and Tx path test at FM mode

6-8 Rapid Travel Charger

Rapid Charger, TC59-US is composed of power supply part and control part.

6-8-1 Power Supply Part (Flyback type SMPS circuit)

AC INPUT

AC input protection circuit and rectifier circuit

AC power through the AC plug is rectifiered to DC power of high voltage through the D1, D2, D3, D4, C1 and C2. MOV1 is used by protection circuit from AC power surge. F1 is fuse to prevent over current. L1 and L2 is EMI noise protection filter of switching power.

Switching controller and transformer

U1 supplies constant voltage and constant current to secondary circuit through the transformer. D5, D6 absorbs the reverse voltage when transformer winding turns off.

SECONDARY POWER

Output constant voltage circuit : U4, D24, R17

The HIC detects output voltage and compares it with reference voltage in HIC. The error is FED to primary circuit by U2B. The feeback error is converted to current by U2A and D7. The current controlls U1.

Secondary rectifier circuit : D21, C21

The secondary AC output of transformor is rectified to DC voltage.

Secondary filter circuit : L20, C22

It minimizes the high frequency ripple noise, which is caused by primary oscilation.

Reverse current protection circuit : D20

When power is off, it protects the reverse flow of current from battery pack.

6-8-2 Control Part

MICOM CONTROLLER : U4

U4 is include u-COM to controlled whole charging system and include following internal circuit :
-General Input / Output port
-A / D converter
-Reset delay circuit (Power on delay)
-Timer

It is carried following functions :
-Battery Recognition
-Charging termination condition detection
-Output short detection and output protection
-Temperature detection

BATTERY RECOGNITION CIRCUIT : U4

Battery identity detection determined to voltage detection battery internal between ID and GND.

CURRENT DETECTION CIRCUIT : R14, R15, R16, U4

Battery charging current is changed voltage through R14, R15, R16. This voltage inputed u-COM to 16 times amplifiered through U4.

VOLTAGE DETECTION CIRCUIT : U4

u-COM A/D through U4 pin 15 detected voltage.

BATTERY TEMPERATURE DETECTION CIRCUIT : U4

Battery temperature detection determined temperature by ues of thermistor resistor variation of battery by U4.

CURRENT LIMIT CIRCUIT : U4

When soft-change, current detection circuit limited current flow to battery, reference voltage more than detected current, detected current and U4 internal reference voltage.

6-9 CLA (Cigarette Lighter Adaptor)

6-9-1 Functional Specification

SUMMARY

This standard describes on the specifications of CLA (Cigarette Lighter Adaptor) for the SCH-210 of SAMSUNG.

SCOPE

CLC includes the following two function.

Adapter function

It supplies power needed to operate Cellular Phone with battery pack.

Charger function

Charger for battery pack.

ELECTRONIC SPECIFICATION

Input voltage : 11~30V DC
(normal voltage 13.7V DC)

Output current

-HHP power and battery power setting : 8.2V DC ± 0.05V/0mA
-Output current : 0A to 660mA
-Current limit of this unit should be kept 660mA ± 40mA
-Output voltage range : 8.2V -0.4/+0.2
-LED green : 180mA ± 30mA

Ripple and noise : 100mVpp

Proper fuse capacity : 250V, 2A

Charge time

Small Capacity	about 2hrs.
Medium Capacity	about 3hrs.
Large Capacity	about 4 1/2hrs.

ENVIRONMENTAL SPECIFICATION

Temperature

-Operating temperature : 0°C ~ 50°C
-Storage temperature : -20°C ~ 105°C

Humidity

-Operating humidity : 5% ~ 90%
-Storage humidity : 5% ~ 95%

CLC FUNCTION

Protection circuit

Protection circuit keeps against electronic stress like over current, and inputting polarity power promptly in case of occurring unexpected situation in CLC unit source power.

Function of confirming mobile phone installation

Function of confirming proper charge process with turning on lamp in CLC which is connected with Cellular Phone.
Green : Full charge
Red : Being charge

Function of confirming battery installation

Function of confirming battery installation in cellular phone, then control the CLC activation.

Function of auto power on

Function of turning on Cellular Phone automatically with inserting CLC interface jack into the phone.

6-9-2 Circuit description of SCH-210 CLC

POWER SUPPLY

This circuit supplies HHP & battery with power received from Cigar Lighter jack of automobile.

POWER CIRCUIT OF CHARGE FOR HHP POWER & BATTERY

This Switching Regulator produces needed power for charging HHP power & battery, supplied U1, D1, D2, C1, C2, L1, R25 from Cigar Lighter jack of automobile.

CONFIRMING CIRCUIT OF EXISTING BATTERY OR NOT

U3A reads separated voltage between resistance battery C/F and R20, controls no. 5 pin of U1 through reference voltage and comparator then decides to produce Vcc or not.

CHARGE CURRENT CONTROL CIRCUIT

U2A, U4, Q1 and side circuit detects R4's flowing current, controls no. 5 pin of U1 then charge current and charge voltage.

LED ACTIVATING CIRCUIT

LED activating circuit compares to voltage difference between R4 source and D4 PROP, controls Q3, Q4 through U2B comparator for Q6 and side circuit, then activates LED.

AUTO POWER ON CIRCUIT

Q9, Q10 and side circuit makes power on the circuit allowed Vcc power to no. 9 HHP pin(power on) by turned on Q9, following up the producing Vcc.

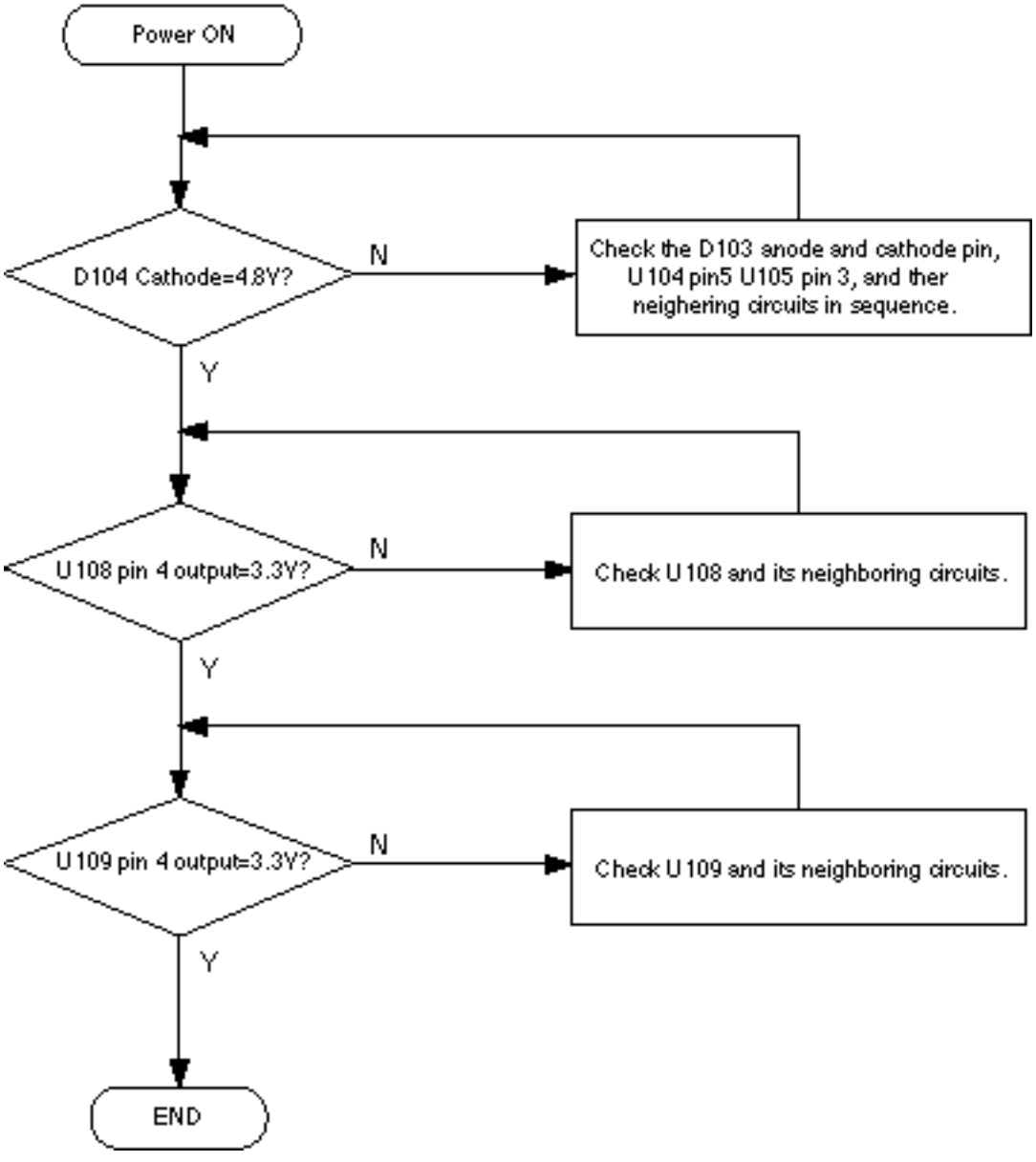
CONNECTION OF CLC, CURL, AND CABLE

Pin no (CLC)	Description	Pin no (HHP)
#1	HP-PWR	9
#2	V-BAT	12/13/16
#3	V/F	N.C
#4	C/F	3
#5	GND	2/4/6

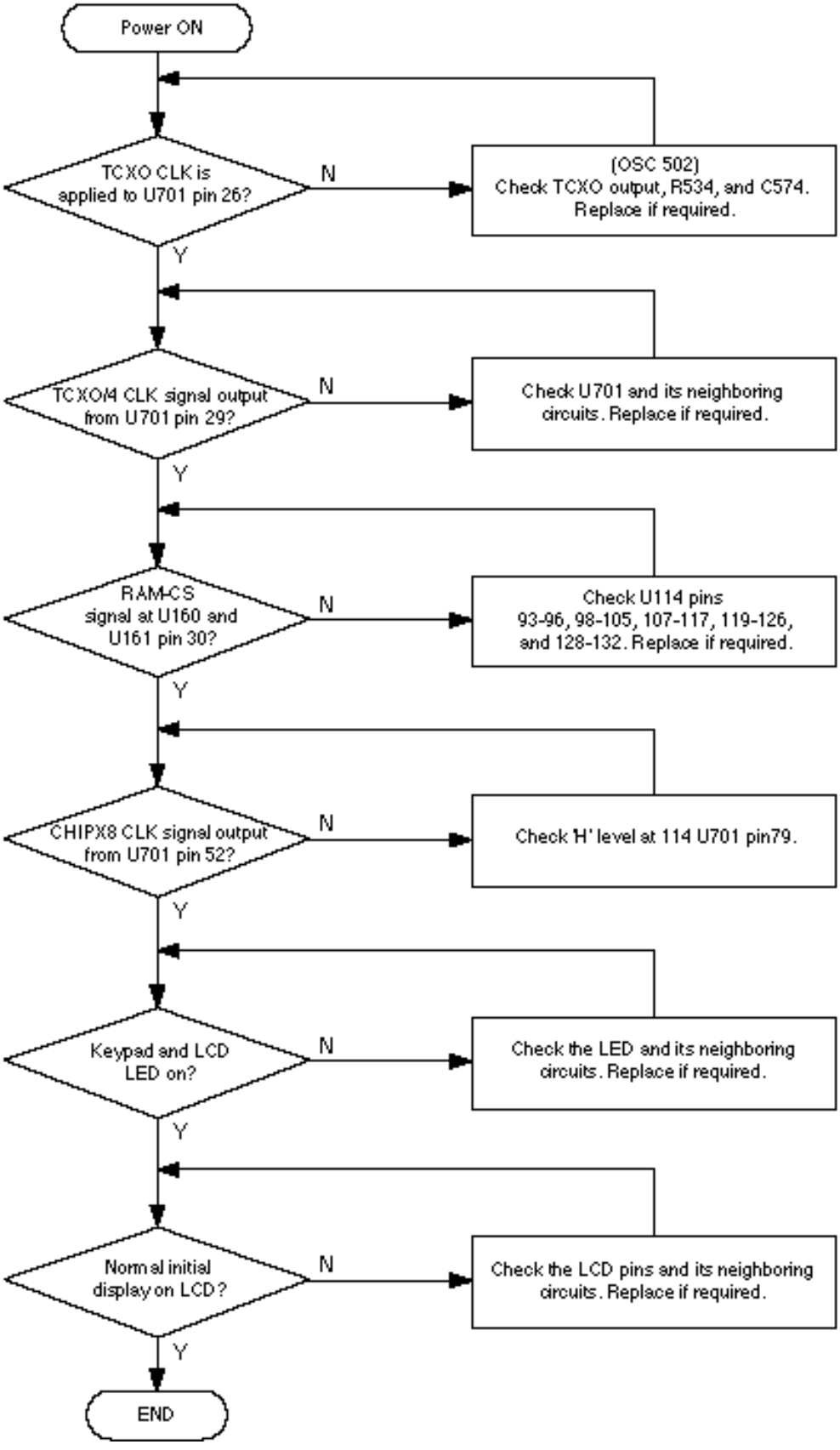
6. Troubleshooting

6-1 Logic Section

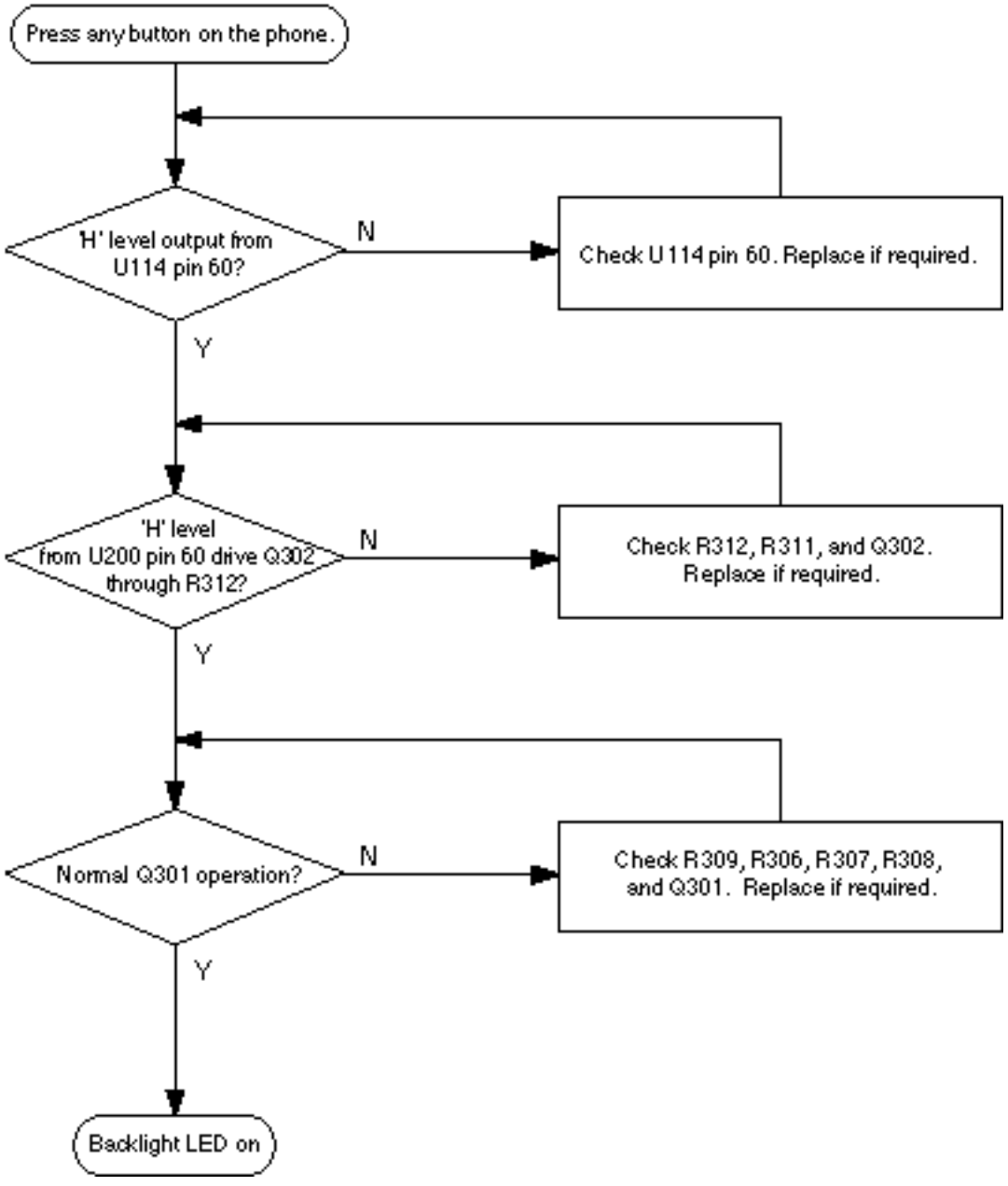
6-1-1 No Power



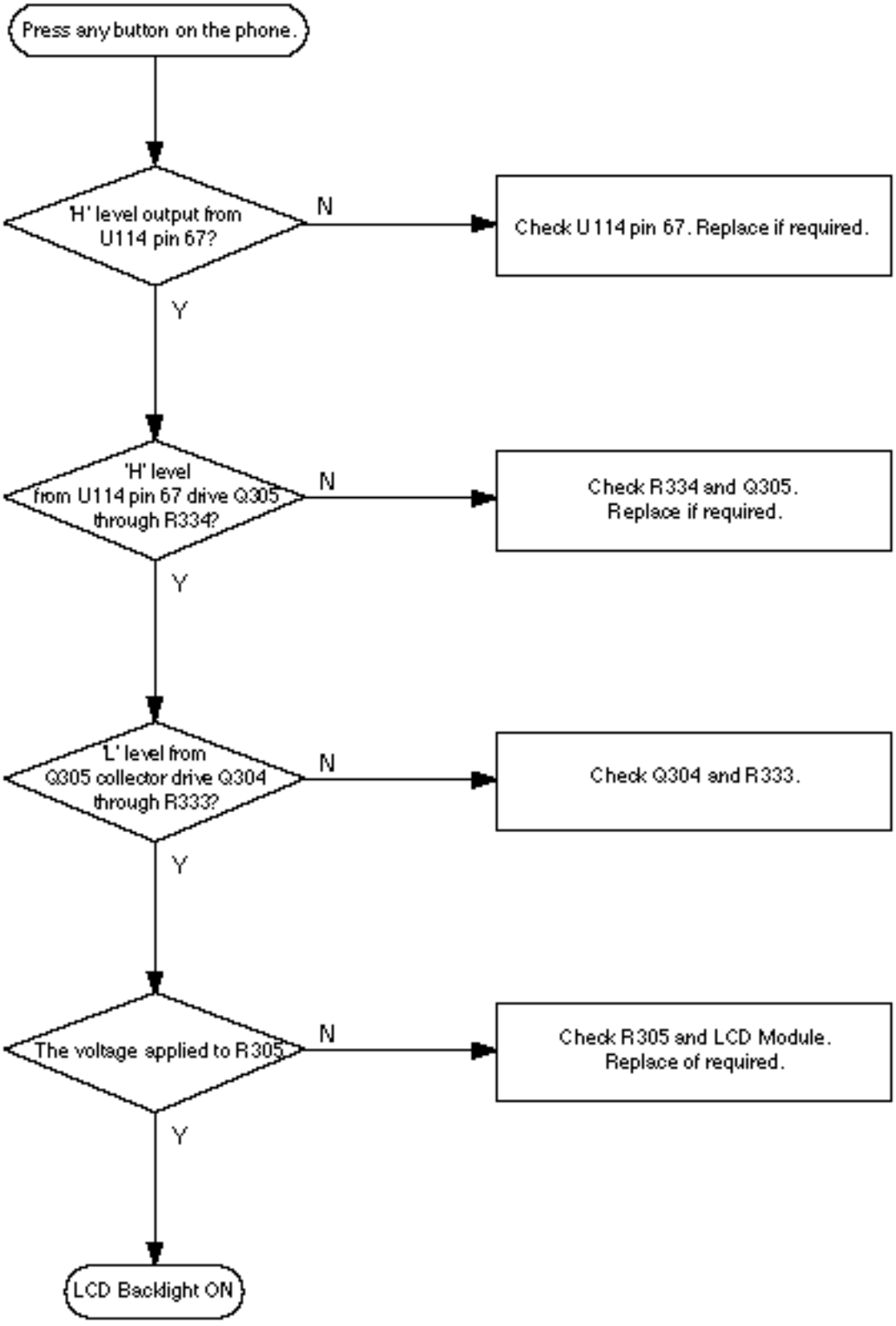
6-1-2 Abnormal Initial Operation (Normal +3.3V voltage source)


Power ON
TCXO CLK is applied to U701 pin 26?
N
(OSC 502) Check TCXO output, R534, and C574. Replace if required.
Y
TCXO/4 CLK signal output from U701 pin 29?
N
Check U701 and its neighboring circuits. Replace if required.
Y
RAM-CS signal at U160 and U161 pin 30?
N
Check U114 pins 93-96, 98-105, 107-117, 119-126, and 128-132. Replace if required.
Y
CHIPX8 CLK signal output from U701 pin 52?
N
Check 'H' level at 114 U701 pin79.
Y
Keypad and LCD LED on?
N
Check the LED and its neighboring circuits. Replace if required.
Y
Normal initial display on LCD?
N
Check the LCD pins and its neighboring circuits. Replace if required.
Y
END

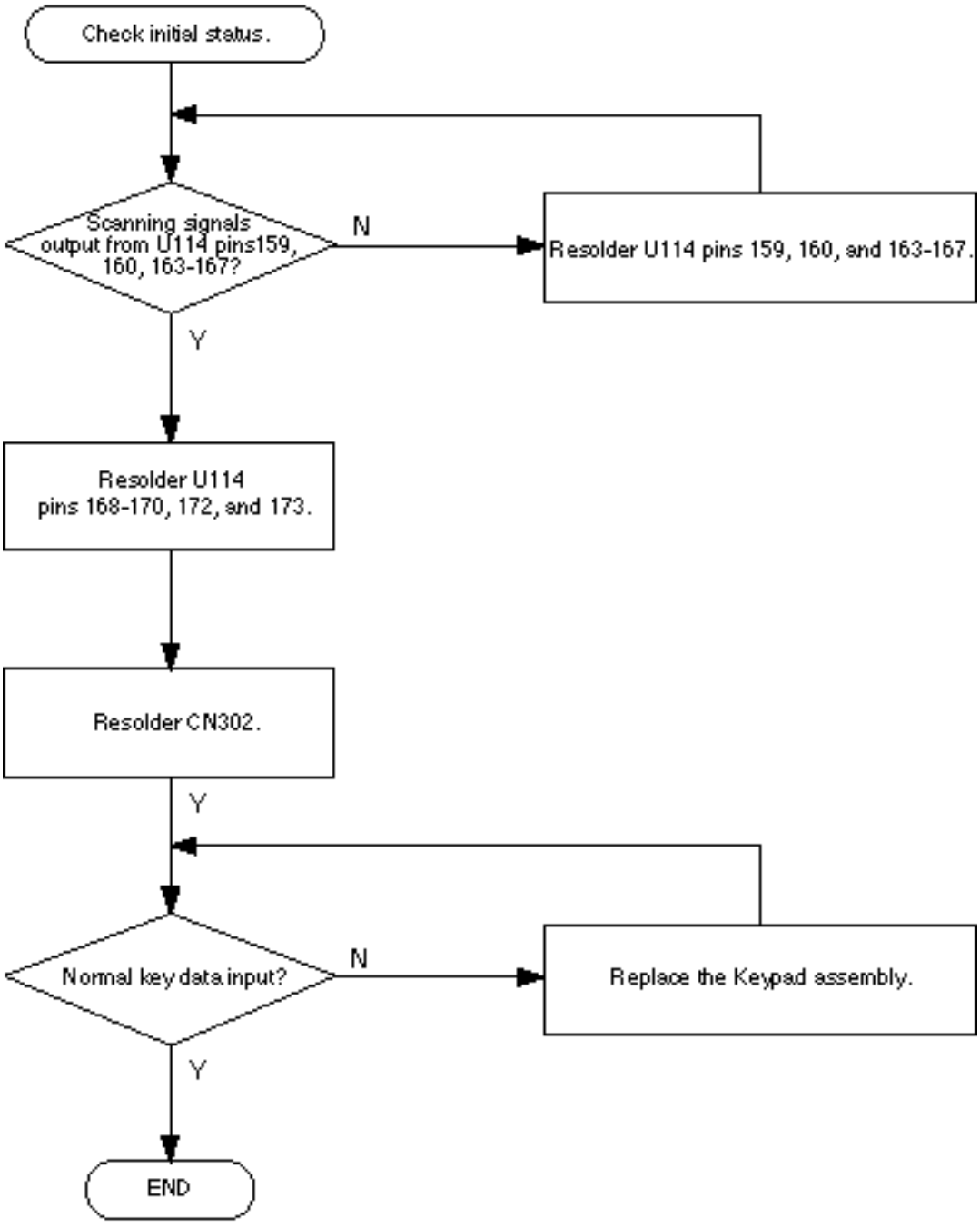
6-1-3 Abnormal Keypad Backlight Operation


Press any button on the phone.
'H' level output from U114 pin 60?
N
Check U114 pin 60. Replace if required.
Y
'H' level from U200 pin 60 drive Q302 through R312?
N
Check R312, R311, and Q302. Replace if required.
Y
Normal Q301 operation?
N
Check R309, R306, R307, R308, and Q301. Replace if required.
Y
Backlight LED on

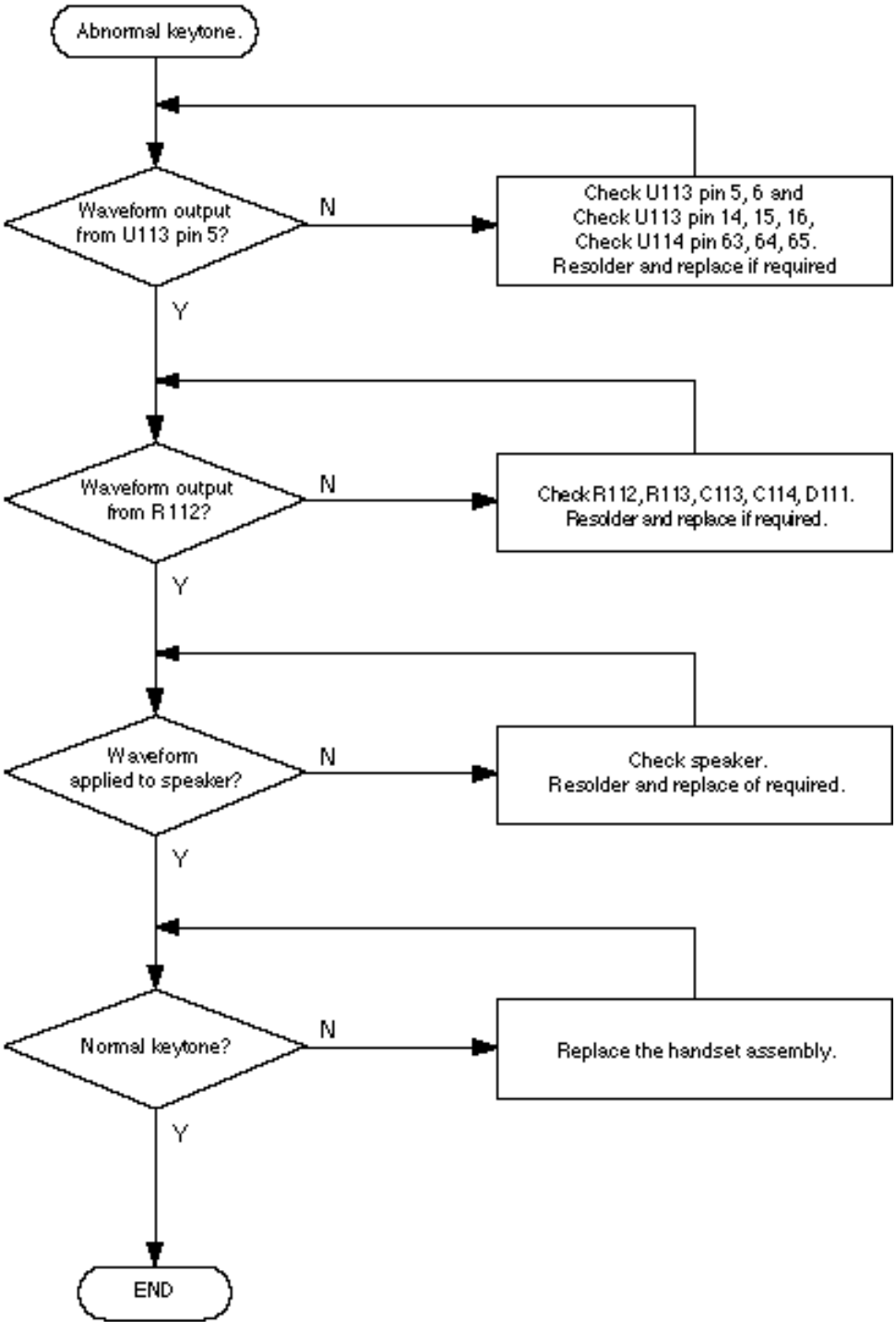
6-1-4 Abnormal LCD Backlight oparation


Press any button on the phone.
'H' level output from U114 pin 67?
N
Check U114 pin 67. Replace if required.
Y
'H' level from U114 pin 67 drive Q305 through R334?
N
Check R334 and Q305. Replace if required.
Y
'L' level from Q305 collector drive Q304 through R333?
N
Check Q304 and R333.
Y
The voltage applied to R305
N
Check R305 and LCD Module. Replace of required.
Y
LCD Backlight ON

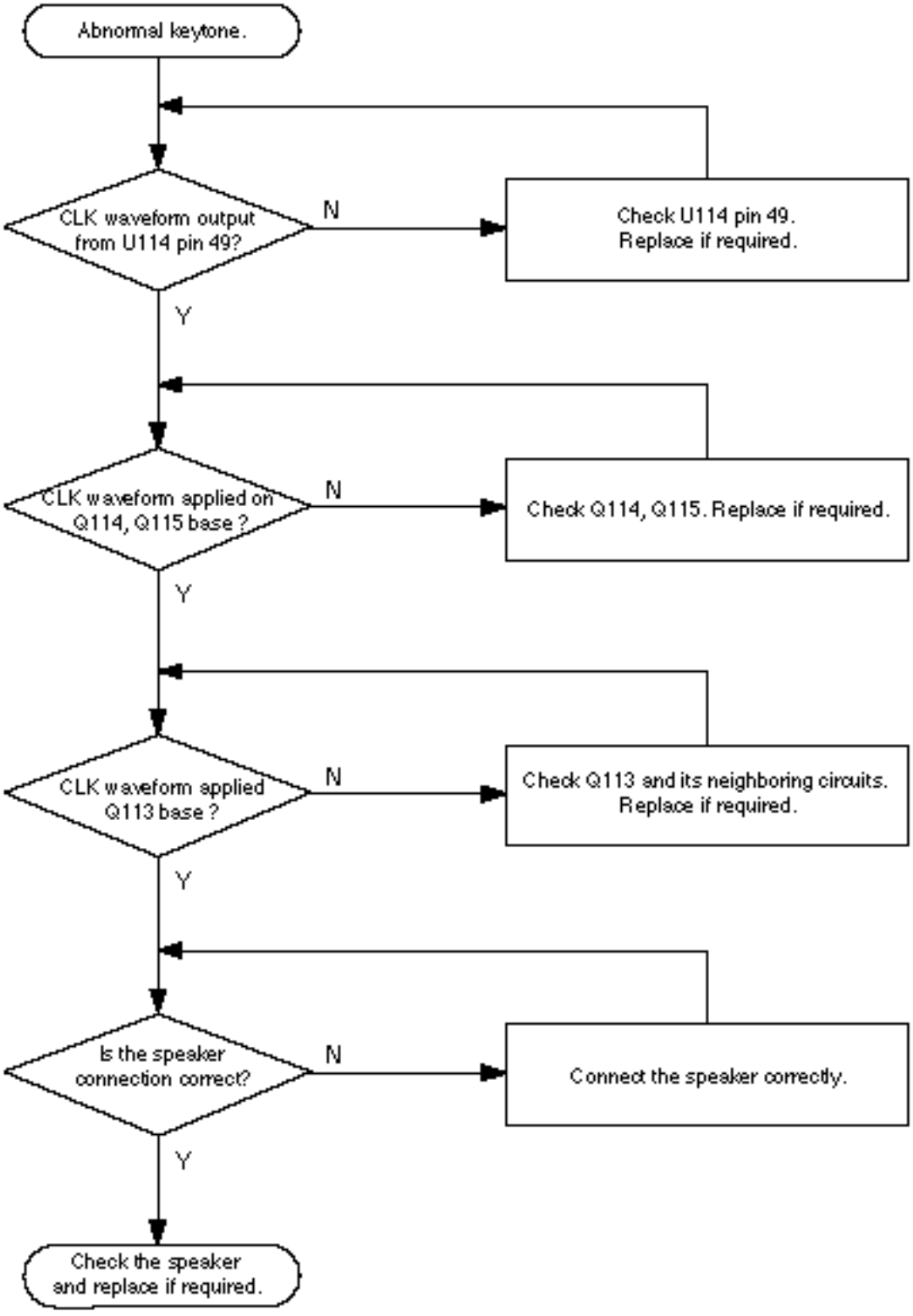
6-1-5 Abnormal Key Data Input



6-1-6 Abnormal Keytone



6-1-7 Abnormal Alert Tone



MEMO

7. Exploded View and its Parts List

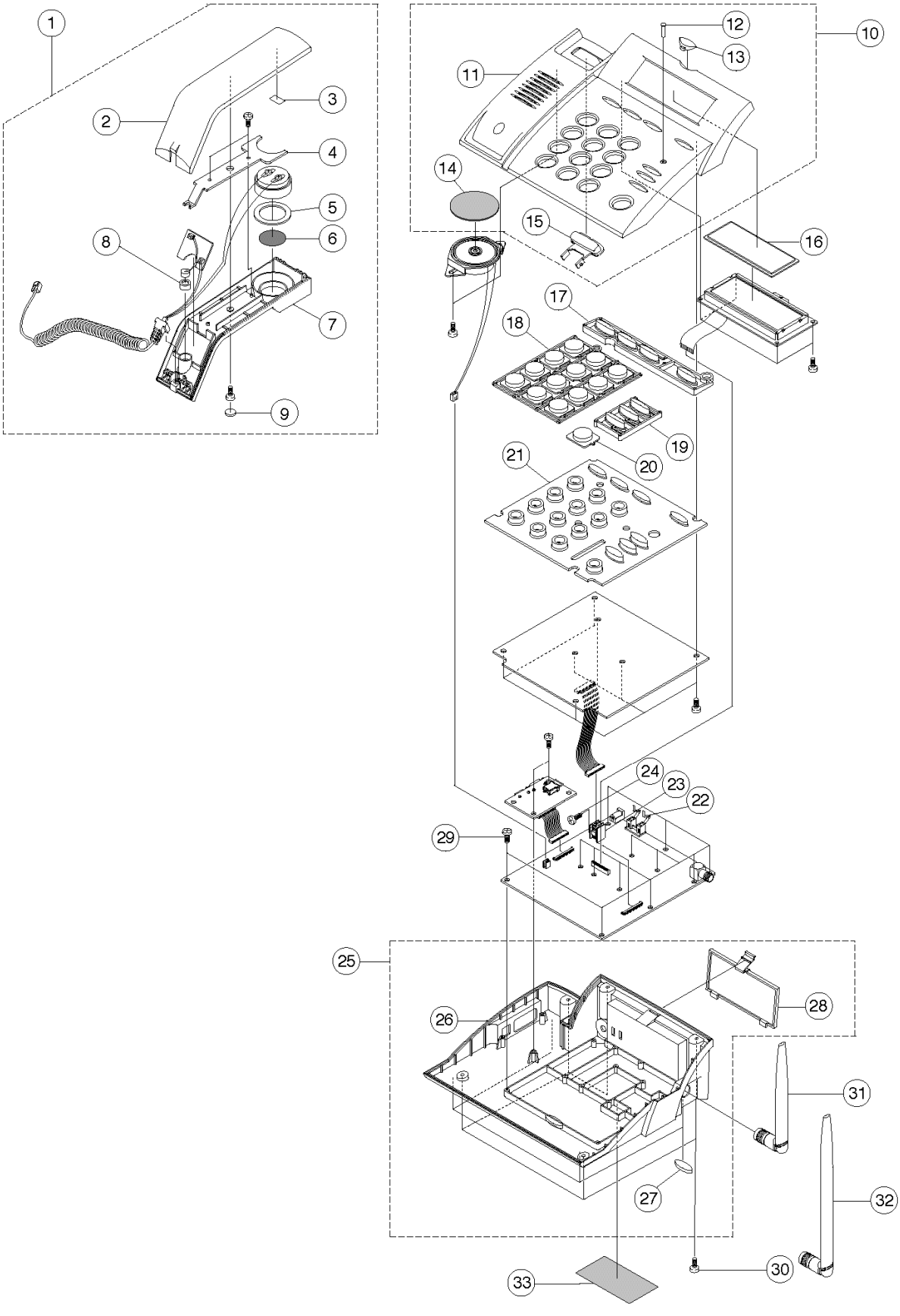
7-1 Fixed Phone Exploded View

7-2 Fixed Phone Parts List

7-3 Main Packing Layout

7-4 Main Packing Parts List

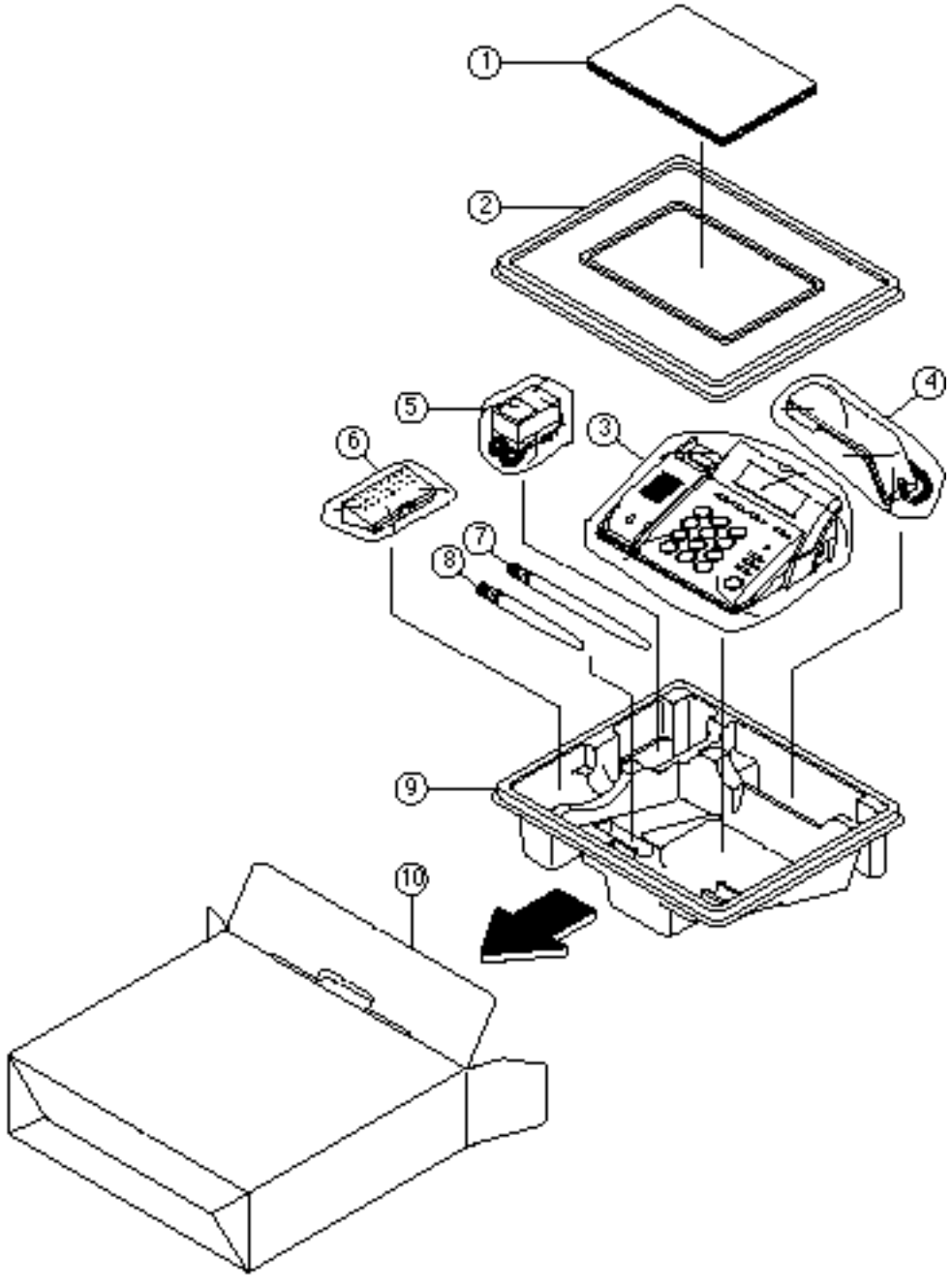
7-1 Fixed Phone Exploded View



7-2 Fixed Phone Parts List

NO	DESCRIPTION	SEC. CODE	Q'TY	REMARK
1	Handset Assy'	GH96-01089A	1	
2	Handset Upper	GH72-41447A	1	
3	Sponge Unit	GH74-10586A	1	
4	WEIGHT BALANCE	GH70-10629A	1	
5	SPONG BUMPER	GG74-10587A	1	
6	FELT SPEAKER	GG74-10648A	1	
7	HANDSET LOWER	GH72-41448A	1	
8	MIC HOLDER	GG73-40549A	1	
9	HOLE DUMMY	GH73-40665A	1	
10	SUA, LIPPER HOUSING	GH75-11151A	1	
11	UPPER-HOUSING	GH72-41445A	1	
12	POWER-LED	GH72-41462A	1	
13	REFLECTOR-LED	GG72-41461A	1	
14	SPONGE SPEAKER	GH74-10502B	1	
15	PLUNGER	GH72-41449A	1	
16	WINDOW-LCD	GH72-41463A	1	
17	4 FUNCTION KEY	GH72-41466A	1	
18	3 ° 4 FUNCTION KEY	GH72-41467A	1	
19	3 FUNCTION KEY	GH72-41465A	1	
20	ON/HOOK KEY	GH72-41467A	1	
21	KEY RUBBER	GH73-40662A	1	
22	SUA, CONTACT BATTERY	GH75-11152A	1	
23	HEAT SINK	GH62-30001A	1	
24	SCREW MACHINE	6001-000571	5	
25	SUA, LOWER HOUSING	GH96-01284A	1	
26	LOWER HOUSING	GH72-41446A	1	
27	FOOT-RUBBER	GH73-40663A	4	
28	COVER-BATTERY	GH72-41468A	1	
29	SCREW TAPTITE	6003-000108	30	
29	SCREW TAPTITE	6003-000109	5	
29	ANTENA	GH42-10516A	1	SCW-F2000
29	ANTENA	GH42-10517A	1	SCW-F200
33	LABEL ID MAIN	GH68-31051A	1	ENGLISH

7-3 Main Packing Layout



7-4 Main Packing Parts List

NO	DESCRIPTION	SEC. CODE	Q'TY	REMARK
1	USER MANUAL		1	ENGLISH
2	CUSION COVER-MAIN	GG69-20670A	1	
3	MAIN ASSY’	GH97-01285A	1	
4	HANDSET ASSY’	GH96-01089A	1	
5	ADAPTER		1	
6	BATTERY ASSY’	GH43-10105A	1	
7	ANTENA	GH42-10517A	1	SCW-F200
8	ANTENA	GH42-10516A	1	SCW-F2000
9	CUSION CASE-MAIN	GG69-20671A	1	
10	BOX GIFT-MAIN	GH69-11138A	1	

MEMO

9. Electrical Parts List

NO	DESCRIPTION		SEC. CODE	REMARK
	- Capacitors -			
AN501	BNC, JACK, 3mohm, 50ohm	HIROSE	3705-001141	
C101	Ceramic, Chip, 10NF,16V	MURATA	2203-000254	
C102	Ceramic, Chip, 8.2NF,16V	MURATA	2203-001210	
C103	Ceramic, Chip, 8.2NF,16V	MURATA	2203-001210	
C104	Ceramic, Chip, 220PF,16V	MURATA	2203-000585	
C105	Ceramic,Chip, 10NF,16V	MURATA	2203-000254	
C106	Ceramic, Chip, 1NF,50V	MURATA	2203-000438	
C107	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C108	Tantalum,Chip,10UF,6.3V	AVX	2404-000139	
C112	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C113	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C114	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C132	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C133	Ceramic, Chip, 10NF,16V	MURATA	2203-000254	
C134	Tantalum, Chip, 22UF,16V	AVX	2404-000189	
C135	Tantalum, Chip, 33UF,16V	AVX	2404-000222	
C136	Tantalum, Chip, 1UF,16V	AVX	2404-000151	
C137	Ceramic, Chip, 8.2NF,16V	MURATA	2203-001210	
C138	Ceramic, Chip, 8.2NF,16V	MURATA	2203-001210	
C139	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C140	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C141	Tantalum, Chip, 10UF,6.3V	AVX	2404-000139	
C142	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C143	Tantalum, Chip, 10UF,6.3V	AVX	2404-000139	
C144	Ceramic, Chip, 68PF,50V	MURATA	2203-001153	

NO	DESCRIPTION		SEC. CODE	REMARK
C145	Ceramic, Chip, 68PF,50V	MURATA	2203-001153	
C146	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C147	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C148	Ceramic, Chip, 10NF,16V	MURATA	2203-000254	
C149	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C150	NC	OPEN		
C151	Ceramic, Chip, 10NF,16V	MURATA	2203-000254	
C152	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C153	Ceramic, Chip, 10NF,16V	MURATA	2203-000254	
C154	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C155	Ceramic, Chip, 10NF,16V	MURATA	2203-000254	
C156	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C157	Ceramic, Chip, 10NF,16V	MURATA	2203-000254	
C158	Ceramic, Chip, 470PF,50V	MURATA	2203-000941	
C159	Ceramic, Chip, 100PF,50V	MURATA	2203-000234	
C161	Ceramic, Chip, 5PF,50V	MURATA	2203-001437	
C162	Ceramic, Chip, 5PF,50V	MURATA	2203-001437	
C163	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C164	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C165	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C166	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C167	Tantalum, Chip, 10UF,6.3V	AVX	2404-000139	
C168	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C301	NC	OPEN		
C302	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C303	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	

NO	DESCRIPTION		SEC. CODE	REMARK
C304	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C305	Ceramic, Chip, 10NF,16V	MURATA	2203-000254	
C306	Ceramic, Chip, 10NF,16V	MURATA	2203-000254	
C307	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C308	Ceramic, Chip, 2.2NF,50V	MURATA	2203-000489	
C309	Tantalum, Chip, 0.47UF,16V	AVX	2404-000312	
C310	Tantalum, Chip, 0.47UF,16V	AVX	2404-000312	
C311	Tantalum, Chip, 0.47UF,16V	AVX	2404-000312	
C312	Tantalum, Chip, 0.47UF,16V	AVX	2404-000312	
C313	Tantalum, Chip, 0.47UF,16V	AVX	2404-000312	
C314	Tantalum, Chip, 1UF,10V	AVX	2404-000291	
C315	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C316	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C317	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C501	Ceramic, Chip, 10NF,16V	MURATA	2203-000254	
C502	Tantalum, Chip, 4.7UF,10V	AVX	2404-000232	
C503	Ceramic, Chip 10NF,16V	MURATA	2203-000585	
C504	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C505	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C506	Tantalum, Chip 4.7UF,10V	AVX	2404-000232	
C507	Tantalum, Chip 4.7UF,10V	AVX	2404-000232	
C508	Ceramic, Chip 470PF,50V	MURATA	2203-000941	
C509	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C511	Ceramic, Chip 15PF,50V	MURATA	2203-000386	
C512	NC	OPEN		
C513	NC	OPEN		
C514	Ceramic, Chip 100PF,50V	MURATA	2203-000234	

NO	DESCRIPTION		SEC. CODE	REMARK
C515	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C516	NC	OPEN		
C517	Ceramic, Chip 3PF,50V	MURATA	2203-000870	
C518	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C519	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C520	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C521	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C522	Ceramic, Chip 0.5PF,50V	MURATA	2203-001383	
C523	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C524	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C525	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C526	Ceramic, Chip 9PF,50V	MURATA	2203-001283	
C527	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C528	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C529	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C530	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C531	NC	OPEN		
C532	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C533	Ceramic, Chip 10PF,50V	MURATA	2203-000278	
C534	Ceramic, Chip 4PF,50V	MURATA	2203-001017	
C535	Ceramic, Chip 4PF,50V	MURATA	2203-001017	
C536	Ceramic, Chip 470PF,50V	MURATA	2203-000941	
C537	Tantalum, Chip 4.7UF,10V	AVX	2404-000232	
C538	Ceramic, Chip 47NF,16V	MURATA	2203-001432	
C539	Ceramic, Chip 1PF,50V	MURATA	2203-000466	
C541	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C542	Ceramic, Chip 1PF,50V	MURATA	2203-000466	

NO	DESCRIPTION		SEC. CODE	REMARK
C543	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C544	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C545	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C546	Ceramic, Chip 10NF,16V	MURATA	2203-000585	
C547	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C548	Ceramic, Chip 1PF,50V	MURATA	2203-000466	
C549	Ceramic, Chip 1PF,50V	MURATA	2203-000466	
C550	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C551	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C552	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C553	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C554	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C555	Tantalum, Chip 4.7UF,10V	AVX	2404-000232	
C556	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C557	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C558	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C559	NC	OPEN		
C560	Tantalum,Chip,1UF,16V	AVX	2404-000151	
C561	Ceramic, Chip 100NF,16V	MURATA	2203-005061	
C562	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C563	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C564	Ceramic, Chip 4.7NF,25V	MURATA	2203-000885	
C565	Tantalum, Chip 220NF,35V	AVX	2404-000180	
C566	NC	OPEN		
C567	Ceramic, Chip 47NF,16V	MURATA	2203-001432	
C568	Ceramic, Chip 10PF,50V	MURATA	2203-000278	
C569	Ceramic, Chip 100PF,50V	MURATA	2203-000234	

NO	DESCRIPTION		SEC. CODE	REMARK
C571	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C572	Tantalum, Chip 4.7UF,10V	AVX	2404-000232	
C573	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C574	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C575	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C576	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C577	Tantalum, Chip 4.7UF,10V	AVX	2404-000232	
C578	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C579	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C581	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C582	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C583	Ceramic, Chip 1PF,50V	MURATA	2203-000466	
C584	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C585	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C701	Tantalum, Chip 100UF,10V	AVX	2404-000278	
C702	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C703	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C704	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C705	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C706	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C707	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C708	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C709	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C711	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C712	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C713	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C714	Ceramic, Chip 1NF,50V	MURATA	2203-000438	

NO	DESCRIPTION		SEC. CODE	REMARK
C715	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C716	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C717	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C718	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C719	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C720	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C721	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C722	Tantalum, Chip, 10UF,6.3V	AVX	2404-000139	
C723	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C725	Ceramic, Chip 8.2NF,16V	MURATA	2203-001210	
C726	Ceramic, Chip 8.2NF,16V	MURATA	2203-001210	
C727	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C728	Ceramic, Chip 68PF,50V	MURATA	2203-001153	
C729	Ceramic, Chip 68PF,50V	MURATA	2203-001153	
C730	Ceramic, Chip 5PF, 50V	MURATA	2203-001437	
C731	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C732	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C733	NC	OPEN		
C734	Tantalum, Chip, 1UF,10V	AVX	2404-000291	
C735	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C736	Ceramic, Chip 6PF,50V	MURATA	2203-001178	
C737	Ceramic, Chip 68PF,50V	MURATA	2203-001153	
C738	Ceramic, Chip 68PF,50V	MURATA	2203-001153	
C739	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C741	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C742	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C743	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	

NO	DESCRIPTION		SEC. CODE	REMARK
C744	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C745	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C746	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C747	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C748	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C749	Ceramic, Chip 47NF,16V	MURATA	2203-001432	
C751	Tantalum, Chip, 10UF,6.3V	AVX	2404-000139	
C752	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C753	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C754	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C755	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C756	Ceramic, Chip 1PF,50V	MURATA	2203-000466	
C757	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C758	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C759	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C760	NC	OPEN		
C761	NC	OPEN		
C762	Ceramic, Chip 47PF,50V	MURATA	2203-000995	
C763	Ceramic, Chip 10PF,50V	MURATA	2203-000278	
C764	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C765	Ceramic, Chip 47PF,50V	MURATA	2203-000995	
C766	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C767	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
C768	Ceramic, Chip 3PF,50V	MURATA	2203-000234	
C769	NC	OPEN		
C770	Ceramic, Chip 3PF,50V	MURATA	2203-000234	
C771	Ceramic, Chip 10NF,16V	MURATA	2203-000254	

NO	DESCRIPTION		SEC. CODE	REMARK
C772	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C773	Tantalum, Chip, 10UF,6.3V	AVX	2404-000139	
C774	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C775	NC	OPEN		
C776	NC	OPEN		
C777	NC	OPEN		
C778	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C779	Ceramic, Chip, 100NF,25V	MURATA	2203-000189	
C781	NC	OPEN		
C782	Tantalum, Chip 4.7UF,10V	AVX	2404-000232	
C783	Ceramic, Chip 10NF,16V	MURATA	2203-000254	
C784	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C785	Ceramic, Chip 100PF,50V	MURATA	2203-000234	
C786	Ceramic, Chip 1NF,50V	MURATA	2203-000438	
	CONNECTOR -			
CN101	ConnectorHeader,2P,2mm,Straight	MOLEX	3711-000827	
CN102	Jack-AC POWER, 2P, 2mm, BLK	SEOULE	3722-000342	
CN103	MEC-CONTACT BATT SUA	HOJIN	GH75-11152A	
CN301	53398-1590	MOLEX	3711-003938	
CN302	53398-1590	MOLEX	3711-003938	
CN303	53398-1590	MOLEX	3711-003938	
	DIODE-			
D103	Diode, Schottky, RB160L-40TE25	ROHM	0404-000115	
D104	Diode, Rectifier, 1SR154-400	ROHM	0402-000309	
D105	Diode, Zener, UDZ6.8B	ROHM	0403-001172	
D106	Diode, Schottky, RB160L-40TE25	ROHM	0404-000115	
D107	Diode Array, DA204U,20V,100mA	ROHM	0407-000127	

NO	DESCRIPTION		SEC. CODE	REMARK
D108	Diode Array, DA204U,20V,100mA	ROHM	0407-000127	
D109	Diode Array, DA204U,20V,100mA	ROHM	0407-000127	
D111	SM05,6V/1mA,300,SOT-23	SEMTECH	0406-001005	
D112	NC	OPEN		
D301	SM05,6V/1mA,300,SOT-23	SEMTECH	0406-001005	
D302	SM05,6V/1mA,300,SOT-23	SEMTECH	0406-001005	
D501	Diode-Pin,RN731V,50V,50mA	ROHM	0409-000108	
D701	Diode, Varactor, 1SV279, 15V,3nA	TOSHIBA	0405-001035	
D702	Diode, Varactor, 1SV279, 15V,3nA	TOSHIBA	0405-001035	
D703	Diode, Varactor, 1SV279, 15V,3nA	TOSHIBA	0405-001035	
D704	Diode, Varactor, 1SV279, 15V,3nA	TOSHIBA	0405-001035	
	FILTER-			
F501	FILTER-DUPLEXER, 881.5MHz, 836.5MHz	MURATA	2909-001004	
F502	FILTER-SAW, 881.5MHz, 869-894M	FUJITSU	2904-001011	
F503	FILTER-SAW, 85.38MHz,17dB	THOMSON	2904-000297	
F701	FILTER-SAW, 836.5MHz, 25MHz	FUJITSU	2904-001012	
F702	FILTER-SAW, 836.5MHz, 25MHz	FUJITSU	2904-001012	
	CORE-			
L501	CORE-FERRITE	MURATA	3301-001105	
	INDUCTOR-			
L502	INDUCTOR-SMD, 22nH, 5%	TOKO	2703-001422	
L503	INDUCTOR-SMD, 27nH, 10%	TOKO	2703-001413	
L504	INDUCTOR-SMD, 15nH, 5%	TOKO	2703-001190	
L505	Ceramic CHIP, 100PF, 50V	MURATA	2203-000236	
L506	INDUCTOR-SMD, 27nH, 10%	TOKO	2703-001413	
L507	INDUCTOR-SMD, 10nH, 5%	TOKO	2703-001040	
L508	INDUCTOR-SMD, 180nH, 5%	TOKO	2703-001043	

NO	DESCRIPTION		SEC. CODE	REMARK
L509	INDUCTOR-SMD, 180nH, 5%	TOKO	2703-001043	
L511	INDUCTOR-SMD, 1.5UH, 10%	COILCRAFT	2703-000104	
L512	NC	OPEN		
L513	INDUCTOR-SMD, 330nH, 10%	TOKO	2703-000195	
L514	INDUCTOR-SMD, 390nH, 10%	TOKO	2703-000261	
L515	INDUCTOR-SMD, 2.7nH, 10%	TOKO	2703-000301	
L516	INDUCTOR-SMD, 2.7nH, 10%	TOKO	2703-000301	
L517	INDUCTOR-SMD, 8.2nH, 10%	TOKO	2703-001167	
L518	INDUCTOR-SMD, 6.8nH, 5%	TOKO	2703-001207	
	CORE-			
L519	CORE-FERRITE, AB	MURATA	3301-001105	
L520	INDUCTOR-SMD, 8.2NH, 10%	TOKO	2703-001167	
L521	CORE-FERRITE, AB	MURATA	3301-001105	
L522	CORE-FERRITE, AB	MURATA	3301-001105	
L523	Ceramic CHIP, 100PF, 50V	MURATA	2203-000236	
L524	NC	OPEN		
L701	CORE-FERRITE, AB	MURATA	3301-001105	
	INDUCTOR-			
L702	INDUCTOR-SMD, 68nH, 10%	CRAFT	2703-000233	
L703	INDUCTOR-SMD, 27nH, 10%	CRAFT	2703-000304	
L704	INDUCTOR-SMD, 100nH, 10%	TDK	2703-000109	
L705	INDUCTOR-SMD, 100nH, 10%	TDK	2703-000109	
L706	CORE-FERRITE, AB	MURATA	3301-001105	
L707	INDUCTOR-SMD, 18nH, 5%	TOKO	2703-001189	
L708	CORE-FERRITE, AB	MURATA	3301-001105	
L709	CORE-FERRITE, AB	MURATA	3301-001105	
L711	INDUCTOR-SMD, 68nH, 5%	TOKO	2703-001425	

NO	DESCRIPTION		SEC. CODE	REMARK
L712	INDUCTOR-SMD, 6.8nH, 5%	TOKO	2703-001207	
L714	CORE-FERRITE, AB	MURATA	3301-001105	
L715	CORE-FERRITE BEAD, AB	MURATA	3301-001120	
OSC101	RESONATOR-CERAMIC, 27MHz	MURATA	2802-001048	
OSC501	OSCILLATOR-VCO, 954MHz	TOWA	2806-001146	
OSC502	OSCILLATOR-VCTCXO,19.68MHz	KYOCERA	2809-001208	
	TR-			
Q102	TR-POWER, 2SB798, PNP, 2W	NEC	0502-000479	
Q103	FET-GAAS, MGSF3441V, 30V	MOTOROLA	0505-001121	
Q104	TR-Small Signal, MMBT2222A	MOTOROLA	0501-000457	
Q105	FET-GAAS, MGSF3441V	MOTOROLA	0505-001121	
Q106	TR-Small Signal, 2SC4081	ROHM	0501-000218	
Q107	TR-Small Signal, MMBT2222A	MOTOROLA	0501-000457	
Q108	TR-Digital, RN1104	TOSHIBA	0504-000168	
Q109	TR-Digital, RN2104	TOSHIBA	0504-000172	
Q111	TR-Digital, RN1104	TOSHIBA	0504-000168	
Q112	TR-Digital, RN2104	TOSHIBA	0504-000172	
Q113	TR-POWER, 2SB798	NEC	0502-000479	
Q114	TR-Small Signal, MMBT2222A	MOTOROLA	0501-000457	
Q115	TR-Small Signal, MMBT2222A	MOTOROLA	0501-000457	
Q301	TR-Small Signal, MMBT2222A	MOTOROLA	0501-000457	
Q302	TR-Small Signal, 2SC4081	ROHM	0501-000218	
Q303	TR-Small Signal, 2SC4081	ROHM	0501-000218	
Q304	TR-POWER, 2SB798	NEC	0502-000479	
Q305	TR-Small Signal, 2SC4081	ROHM	0501-000218	
Q501	TR-Small Signal, 2SC4081	ROHM	0501-000218	
Q502	FET-SILICON, 2SK2685,P,6V	HITACHI	0505-00111	

NO	DESCRIPTION		SEC. CODE	REMARK
Q503	TR-Small Signal, AT32033	HP	0501-002110	
Q701	TR-Small Signal, 2SC4081	ROHM	0501-000218	
Q702	NC	OPEN		
Q703	FET-GAAS, MGSF3441V, 30V	MOTOROLA	0505-001121	
	REGISTER-			
R101	R-Chip, 4.7Kohm, 5%, 1005	ROHM	2007-000143	
R102	R-Chip, 20Kohm, 5%, 1005	ROHM	2007-000152	
R103	R-Chip, 20Kohm, 5%, 1005	ROHM	2007-000152	
R104	R-Chip, 47Kohm, 5%, 1005	ROHM	2007-000157	
R105	R-Chip, 47Kohm, 5%, 1005	ROHM	2007-000157	
R106	R-Chip, 470ohm, 5%, 1005	ROHM	2007-000932	
R107	R-Chip, 1Kohm, 5%, 1005	ROHM	2007-000140	
R109	R-Chip, 4.7Kohm, 5%, 1005	ROHM	2007-000143	
R110	R-Chip, 1.2Kohm, 5%, 1005	ROHM	2007-001319	
R111	NC	OPEN		
R112	R-Chip, 15ohm, 5%, 1608	ROHM	2007-000416	
R113	R-Chip, 15ohm, 5%, 1608	ROHM	2007-000416	
R114	R-Chip, 1.2Kohm, 5%, 1005	ROHM	2007-001319	
R115	R-Chip, 1.2Kohm, 5%, 1005	ROHM	2007-001319	
R116	R-Chip, 15ohm, 5%, 1005	MATSUSHITA	2007-002965	
R117	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R118	R-Chip, 15ohm, 5%, 1608	ROHM	2007-000416	
R126	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R127	R-Chip, 1.8Kohm, 5%, 1005	ROHM	2007-001320	
R128	R-Chip, 560ohm, 5%, 1005	ROHM	2007-002797	
R129	R-Chip, 24ohm, 5%, 3216	ROHM	2007-000619	
R131	R-Chip, 24ohm, 5%, 3216	ROHM	2007-000619	

NO	DESCRIPTION		SEC. CODE	REMARK
R132	R-Chip, 1Mohm, 5%, 1005	ROHM	2007-000170	
R133	R-Chip, 200Kohm, 5%, 1608	ROHM	2007-000105	
R134	R-Chip, 10Mohm, 5%, 1608	ROHM	2007-000305	
R135	R-Chip, 15Kohm, 5%, 1005	ROHM	2007-000151	
R136	R-Chip, 200Kohm, 5%, 1608	ROHM	2007-000105	
R137	R-Chip, 100Kohm, 5%, 1005	ROHM	2007-000162	
R138	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R139	R-Chip, 100Kohm, 5%, 1005	ROHM	2007-000162	
R141	R-Chip, 20Kohm, 5%, 1005	ROHM	2007-000152	
R142	R-Chip, 20Kohm, 5%, 1005	ROHM	2007-000152	
R143	R-Chip, 20Kohm, 5%, 1005	ROHM	2007-000152	
R144	R-Chip, 20Kohm, 5%, 1005	ROHM	2007-000152	
R146	R-Chip, 270Kohm, 5%, 1005	ROHM	2007-000636	
R147	R-Chip, 150Kohm, 5%, 1005	ROHM	2007-000164	
R148	R-Chip, 82Kohm, 5%, 1005	ROHM	2007-000161	
R149	R-Chip, 82Kohm, 5%, 1005	ROHM	2007-000161	
R150	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R151	R-Chip, 15Kohm, 5%, 1005	ROHM	2007-000151	
R152	R-Chip, 1Kohm, 5%, 1005	ROHM	2007-000140	
R153	R-Chip, 22Kohm, 5%, 1005	ROHM	2007-000153	
R154	R-Chip, 22Kohm, 5%, 1005	ROHM	2007-000153	
R155	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R156	R-Chip, 270ohm, 5%, 1005	ROHM	2007-001311	
R157	R-Chip, 270ohm, 5%, 1005	ROHM	2007-001311	
R158	R-Chip, 4.7Kohm, 5%, 1005	ROHM	2007-000143	
R159	R-Chip, 470ohm, 5%, 1005	ROHM	2007-000932	
R161	R-Chip, 100ohm, 5%, 1005	ROHM	2007-000138	

NO	DESCRIPTION		SEC. CODE	REMARK
R162	R-Chip, 1Mohm, 5%, 1005	ROHM	2007-000170	
R163	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R164	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R165	R-Chip, 100ohm, 5%, 1005	ROHM	2007-000138	
R166	R-Chip, 100ohm, 5%, 1005	ROHM	2007-000138	
R301	NC	OPEN		
R302	R-Chip, 0ohm, 5%, 1005	ROHM	2007-000171	
R303	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R304	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R305	R-Chip, 91ohm, 5%, 2012	ROHM	2007-001247	
R306	R-Chip, 36ohm, 5%, 1005	ROHM	2007-001294	
R307	R-Chip, 36ohm, 5%, 1005	ROHM	2007-001294	
R308	R-Chip, 36ohm, 5%, 1005	ROHM	2007-001294	
R309	R-Chip, 3.3Kohm, 5%, 1005	ROHM	2007-001325	
R311	R-Chip, 1Kohm, 5%, 1005	ROHM	2007-000140	
R312	R-Chip, 22Kohm, 5%, 1005	ROHM	2007-000153	
R313	NC	OPEN		
R314	R-Chip, 100Kohm, 5%, 1005	ROHM	2007-000162	
R315	R-Chip, 3.9Kohm, 5%, 1005	ROHM	2007-007001	
R316	R-Chip, 56Kohm, 5%, 1005	ROHM	2007-000159	
R317	NC	OPEN		
R318	R-Chip, 100Kohm, 5%, 1005	ROHM	2007-000162	
R319	R-Chip, 2.2Kohm, 5%, 1005	ROHM	2007-000141	
R321	R-Chip, 33Kohm, 5%, 1005	ROHM	2007-000775	
R322	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R323	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R324	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	

NO	DESCRIPTION		SEC. CODE	REMARK
R325	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R326	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R327	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R328	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R329	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R331	R-Chip, 5.1Kohm, 5%, 1005	ROHM	2007-000144	
R333	R-Chip, 1.2Kohm, 5%, 1005	ROHM	2007-001319	
R334	R-Chip, 100Kohm, 5%, 1005	ROHM	2007-000162	
R335	R-Chip, 680ohm, 5%, 1005	ROHM	2007-001119	
R336	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R337	NC	OPEN		
R338	NC	OPEN		
R501	R-Chip, 47Kohm, 5%, 1005	ROHM	2007-000157	
R502	R-Chip, 470ohm, 5%, 1005	ROHM	2007-000932	
R503	R-Chip, 3.3Kohm, 5%, 1005	ROHM	2007-001325	
R504	R-Chip, 0ohm, 5%, 1005	ROHM	2007-000171	
R505	R-Chip, 75ohm, 5%, 1005	ROHM	2007-007009	
R506	R-Chip, 68ohm, 5%, 1005	ROHM	2007-001301	
R507	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R508	R-Chip, 0ohm, 5%, 1005	ROHM	2007-000171	
R509	R-Chip, 56Kohm, 5%, 1005	ROHM	2007-000159	
R510	R-Chip, 680ohm, 5%, 1005	ROHM	2007-001119	
R511	R-Chip, 15ohm, 5%, 1005	ROHM	2007-002965	
R512	NC	OPEN		
R513	R-Chip, 4.7Kohm, 5%, 1005	ROHM	2007-000143	
R514	R-Chip, 240ohm, 5%, 1005	ROHM	2007-007141	
R515	R-Chip, 240ohm, 5%, 1005	ROHM	2007-007141	

NO	DESCRIPTION		SEC. CODE	REMARK
R516	R-Chip, 82ohm, 5%, 1005	ROHM	2007-001217	
R517	R-Chip, 100ohm, 5%, 1005	ROHM	2007-000138	
R518	R-Chip, 82ohm, 5%, 1005	ROHM	2007-001217	
R519	R-Chip, 300ohm, 5%, 1005	ROHM	2007-007008	
R520	R-Chip, 18ohm, 5%, 1005	ROHM	2007-001288	
R521	R-Chip, 300ohm, 5%, 1005	ROHM	2007-007008	
R522	R-Chip, 33ohm, 5%, 1005	ROHM	2007-001292	
R523	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R524	R-Chip, 16ohm, 5%, 1005	ROHM	2007-003006	
R525	R-Chip, 16ohm, 5%, 1005	ROHM	2007-003006	
R526	R-Chip, 16ohm, 5%, 1005	ROHM	2007-003006	
R527	R-Chip, 910ohm, 5%, 1005	ROHM	2007-001317	
R528	R-Chip, 0ohm, 5%, 1005	ROHM	2007-000171	
R529	R-Chip, 1Kohm, 5%, 1005	ROHM	2007-000140	
R531	R-Chip, 2.7Kohm, 5%, 1005	ROHM	2007-000142	
R532	R-Chip, 2Kohm, 5%, 1005	ROHM	2007-000137	
R533	R-Chip, 10ohm, 5%, 1005	ROHM	2007-000172	
R534	R-Chip, 10ohm, 5%, 1005	ROHM	2007-000172	
R535	NC	OPEN		
R536	R-Chip, 1.8Kohm, 5%, 1005	ROHM	2007-001320	
R537	R-Chip, 510ohm, 5%, 1005	ROHM	2007-002796	
R701	R-Chip, 0ohm, 5%, 1005	ROHM	2007-000171	
R702	R-Chip, 10ohm, 5%, 1005	ROHM	2007-000172	
R703	R-Chip, 39Kohm, 1%, 1005	ROHM	2007-007134	
R704	R-Chip, 3.9Kohm, 5%, 1005	ROHM	2007-007001	
R705	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R706	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	

NO	DESCRIPTION		SEC. CODE	REMARK
R325	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R326	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R707	NC	OPEN		
R708	NC	OPEN		
R709	R-Chip, 0ohm, 5%, 1005	ROHM	2007-000171	
R711	R-Chip, 0ohm, 5%, 1005	ROHM	2007-000171	
R712	R-Chip, 1.8Kohm, 5%, 1005	ROHM	2007-001320	
R713	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R714	R-Chip, 10Kohm, 5%, 1005	ROHM	2007-000148	
R715	R-Chip, 100ohm, 5%, 1005	ROHM	2007-000138	
R716	R-Chip, 15Kohm, 1%, 1005	ROHM	2007-007132	
R717	R-Chip, 12Kohm, 1%, 1005	ROHM	2007-007309	
R718	R-Chip, 6.8Kohm, 5%, 1005	ROHM	2007-000146	
R719	R-Chip, 8.2Kohm, 5%, 1005	ROHM	2007-000147	
R721	R-Chip, 1.2Kohm, 5%, 1005	ROHM	2007-001319	
R722	R-Chip, 8.2Kohm, 5%, 1005	ROHM	2007-000147	
R723	R-Chip, 470ohm, 5%, 1005	ROHM	2007-000932	
R724	R-Chip, 150ohm, 5%, 1005	ROHM	2007-001306	
R725	R-Chip, 39ohm, 5%, 1005	ROHM	2007-001295	
R726	R-Chip, 150ohm, 5%, 1005	ROHM	2007-001306	
R727	R-Chip, 5.6Kohm, 5%,1005	ROHM	2007-000982	
R728	R-Chip, 4.7Kohm, 5%, 1005	ROHM	2007-000143	
R729	R-Chip, 0ohm, 5%, 1005	ROHM	2007-000171	
R733	R-Chip, 47Kohm, 1%, 1005	ROHM	2007-007139	
R734	R-Chip, 0ohm, 5%, 1005	ROHM	2007-000171	
R735	R-Chip, 0ohm, 5%, 1005	ROHM	2007-000171	
R736	R-Chip, 100Kohm, 5%, 1005	ROHM	2007-000162	

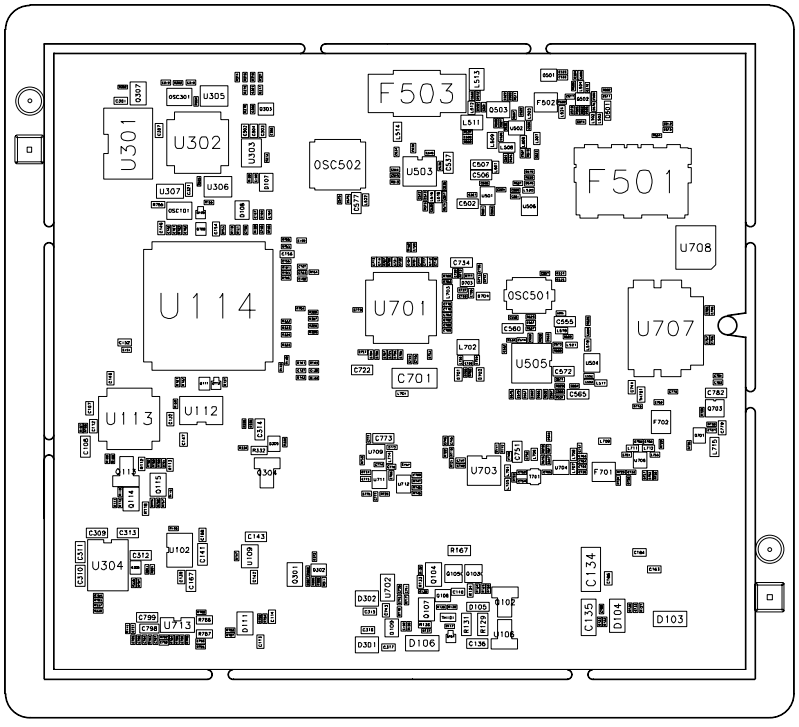
NO	DESCRIPTION		SEC. CODE	REMARK
R738	R-Chip, 100Kohm, 5%, 1005	ROHM	2007-000162	
R739	NC	OPEN		
T701	RF Chip Transformer, 100mW	HITACHI	GH26-40003A	
	IC-			
TH101	THERMISTOR-NTC, 10Kohm	MURATA	1404-001040	
TH701	THERMISTOR-NTC, 10Kohm	MURATA	1404-001040	
U102	VOLTAG REGULATOR, TPS7333Q 8P	TAXAS	1203-001335	
U104	VOLTAGE REGULATOR, MIC2941ABT	MICREL	1203-000650	
U105	POSI, FIXED Reg, KA7806T, 3P, DIP	MOTOROLA	1203-000283	
U106	POSI, ADJUST REG, 5237, 3P	MITSUBISHI	1203-000422	
U109	Voltage Regulator, 11233, 6P	TOKO	1203-000384	
U112	EEPROM	ATMEL	1103-001062	
U113	ENCODER/DECODER, ST5092TQFPTR	SGS-THOMSON	1204-001375	
U114	DATA COMM /GEN, Q5270, 176P, 3.3V	QUALCOMM	1205-001196	
U301	FLASH Memory, 29LV800,512Kx16bit,48P	FUJITSU	1107-001033	
U302	IC-SRAM, 68FS2000, 256Kx8bit, 32P	SEC	1106-001115	
U303	IC-CMOS Logic, 7S04, Inverter,5P	TOSHIBA	0801-000885	
U304	DRIVER/RECEIVER IC, DS14C335MSA	NATIONAL	1006-001098	
U305	NC	OPEN		
U501	IC-Voltage Regulator, 5205, 5P	TOSHIBA	1203-001256	
U502	FET-GAAS, GN2011, 5V, -4V, 60mA	MICREL	0505-001062	
U503	IC-AGC AMP, 5500, 16P, DUAL, 45dB	MATSUSHITA	1201-001075	
U504	IC-CASCODE AMP, 0916, 4P, 2.7V	QUALCOMM	1201-001248	
U505	IC-SYNTHESIZER, LMX2332LTMX, 20P	MOTOROLA	1209-001114	
U506	IC-CASCODE AMP, 0916, 4P, 2.7V	MOTOROLA	1201-001248	
U701	IC-IF CIRCUIT, CXA3003R-T6, 80P	NATIONAL	1204-001113	
U702	IC-TTL, 4W53, MUX/DEMUX, 8P	SONY	0803-003010	

NO	DESCRIPTION		SEC. CODE	REMARK
R738	R-Chip, 100Kohm, 5%, 1005	ROHM	2007-000162	
R739	NC	OPEN		
U703	IC-AGC AMP, 5505, SOP, 16P, DUAL	TOSHIBA	1201-001076	
U704	IC-MIXER, uPC8109T, SOP, 6P, 59MIL	QUALCOMM	1205-001253	
U705	IC-PREAMP, 01037, SOP, 6P, 59MIL	NEC	1201-001175	
U707	IC HYB, SCH-100, RI21002, SOP, 4P	MATSUSHITA	GH13-10560A	
U708	FREQ-ISOLATOR, 836MHz, 15dB	ROCKWELL	4709-000129	
U709	IC-Voltage Regulator, 5205, 5P	HITACHI	1203-001256	
U711	IC-OP AMP, 7101, SOT-23, 5P	MICREL	1201-001006	
	MAIN PCB (SCW-F200(REVER 2.0)	SEM	GH41-10622A	
	15 PIN CABLE (90mm)	SUNGJI	GH39-40517A	
	15PIN CABLE (90mm)	SUNGJI	GH39-40517A	
	JACK-MODULAR, DEK616PCB4-F(ST)	DAE EUN	3722-000309	
	HOOK SWITCH, SPPY12087A	ALPS	3409-000109	
	D-SUB CONNECTOR, 9P	WOYOUNG	3701-000215	
	Angle DIP CONNECTOR, 53048-1510	MOLEX	3711-003936	
	HOOK BOARD PCB	SAEHAN	GH41-10623A	
ASSY	HAND SET , SCW-F200/F2000 PUBLIC	SUNGJI	GH96-01089A	
	LCD MODULE	ORION	GH07-20534A	
	KEYPAD LED	SEC	0601-001197	
	Angle DIP CONNECTOR, 53048-1510	MOLEX	3711-003936	
	KEYPAD PCB	SAEHAN	GH41-10624A	
	DIPOLE ANT , DF-10, 824~894MHz	ACE TECH	GH42-10517A	
	BATTERY, NI-MH, 4.8V, 1800mAh	DAE YUN	GH43-10105A	
	Adaptor, AC220V, 50Hz, DC11V, 800mA	DOO SUNG	GH44-30543A	

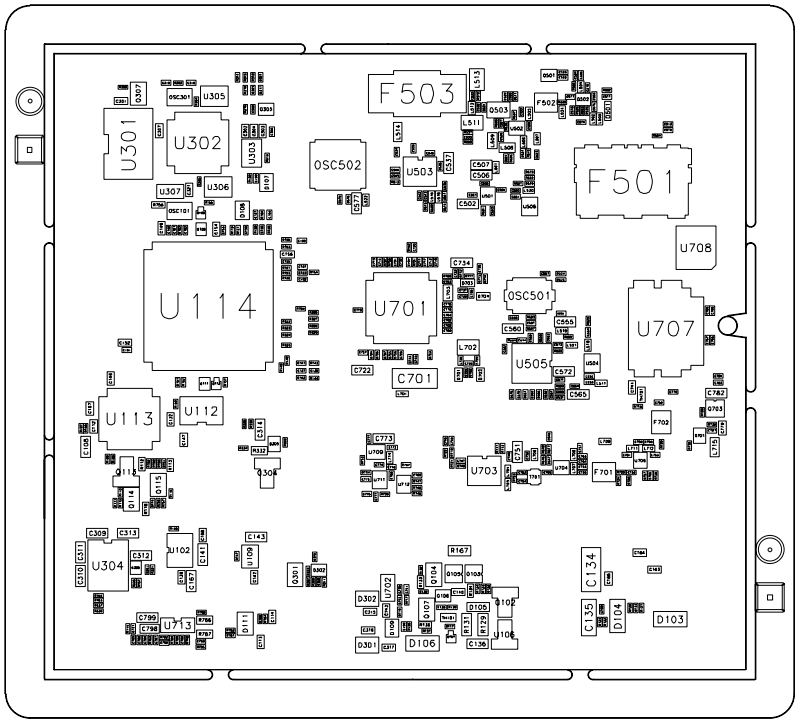
8. PCB Diagrams

8-1 Fixed Phone

Top View

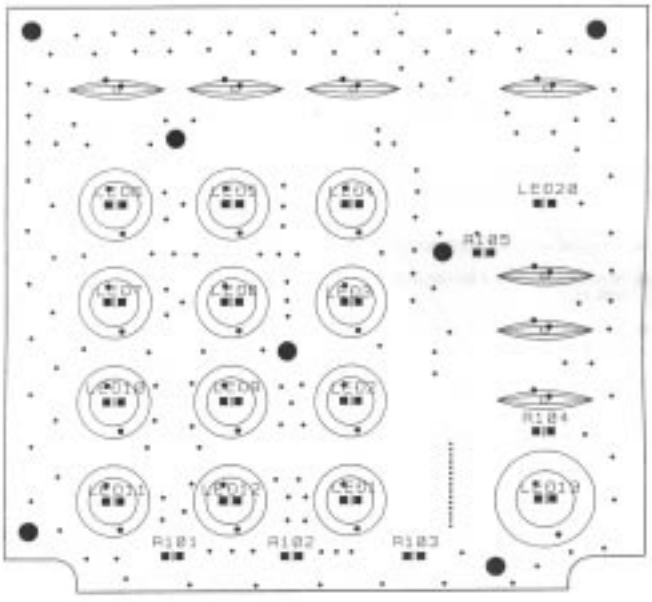


Bottom View

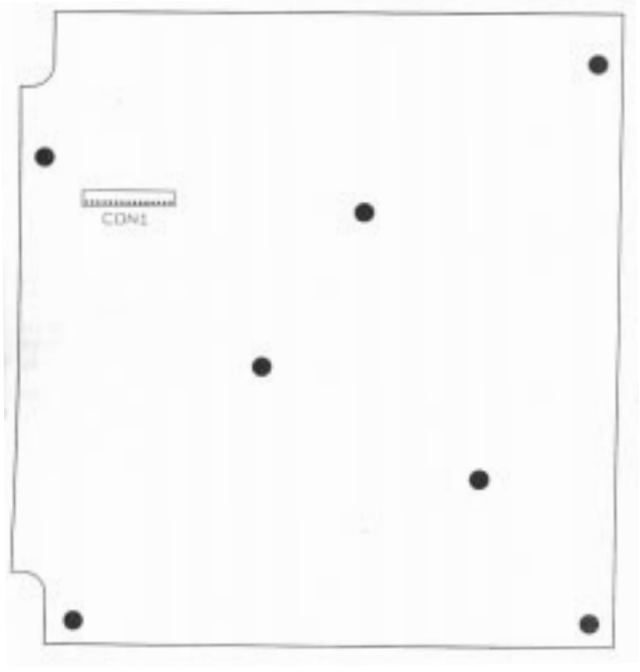

F503
U301
U302
U305
OSC502
U503
F501
U708
U114
U701
OSC501
U707
U505
C701
U113
U112
U703
F701
U304
U102
U713
D106
C134
C135
D104
D103

8-2 Keypad

Top View

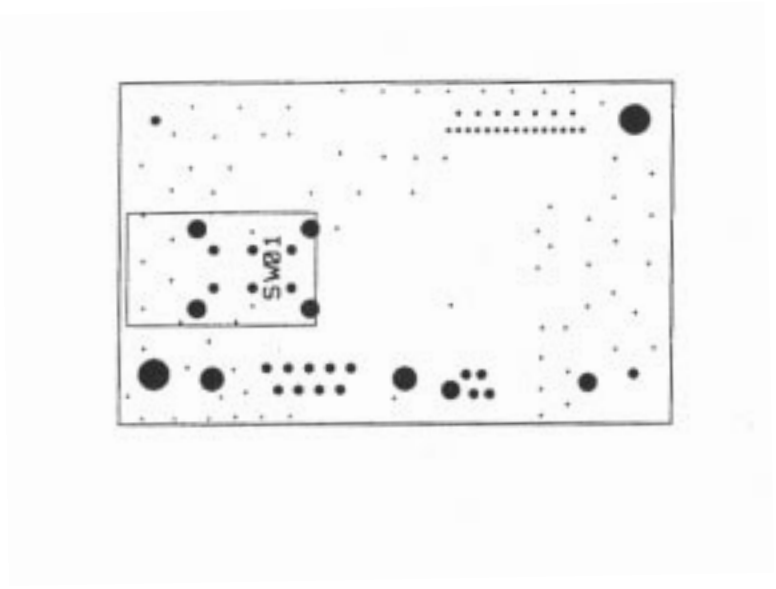


Bottom View

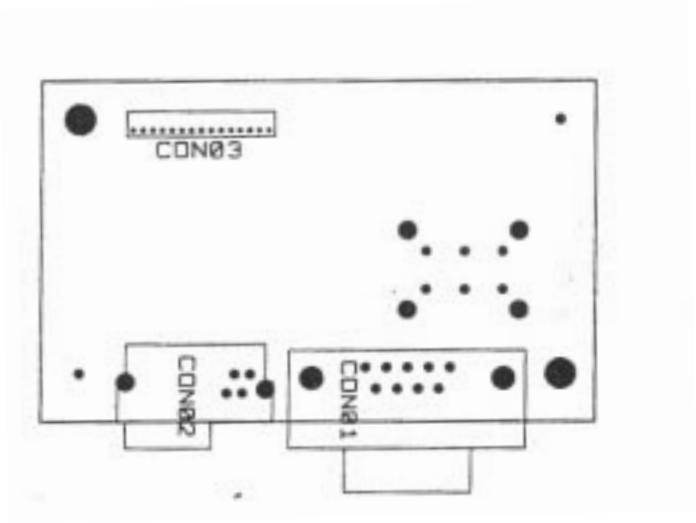


8-3 Hook Board

Top View



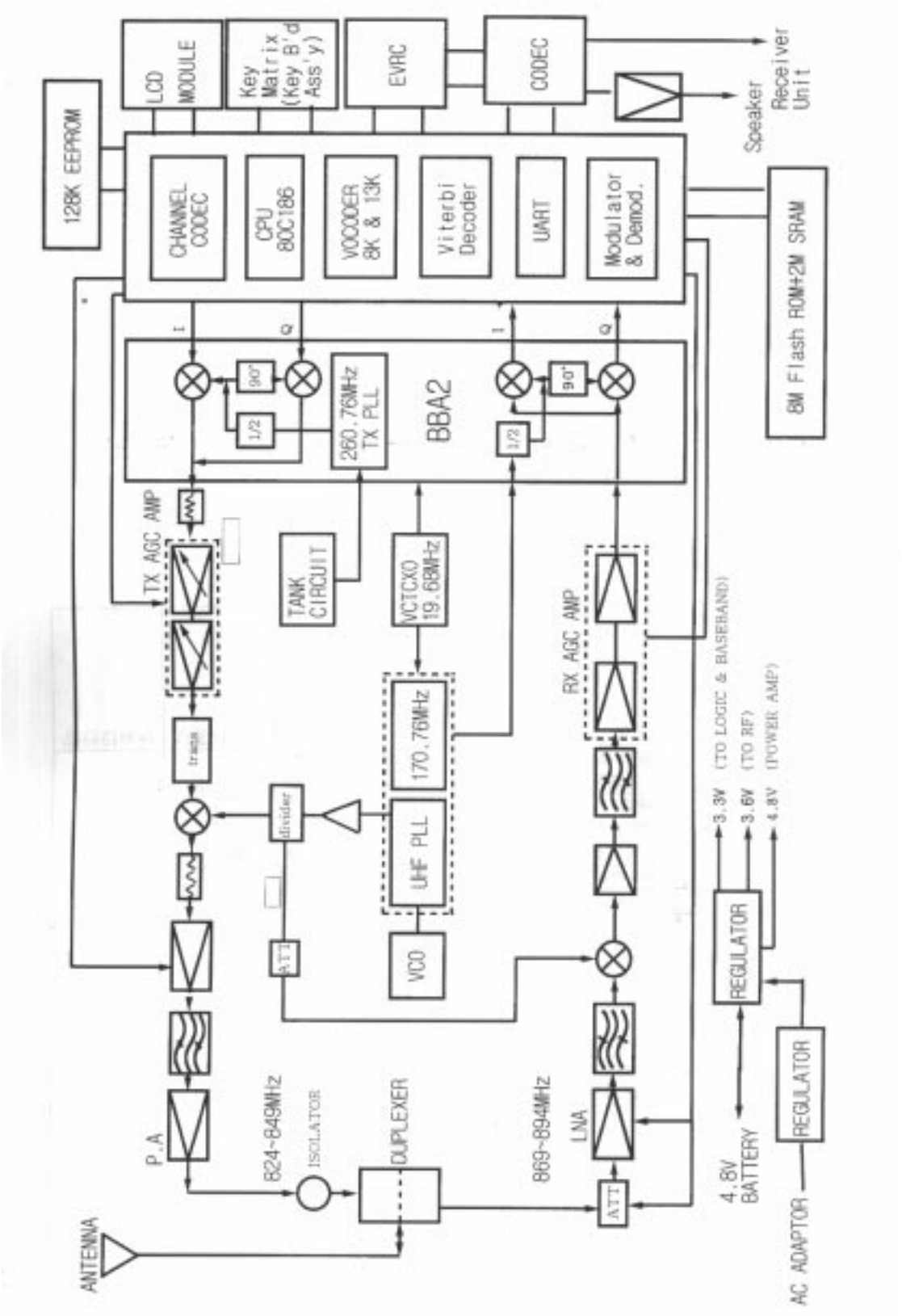
Bottom View



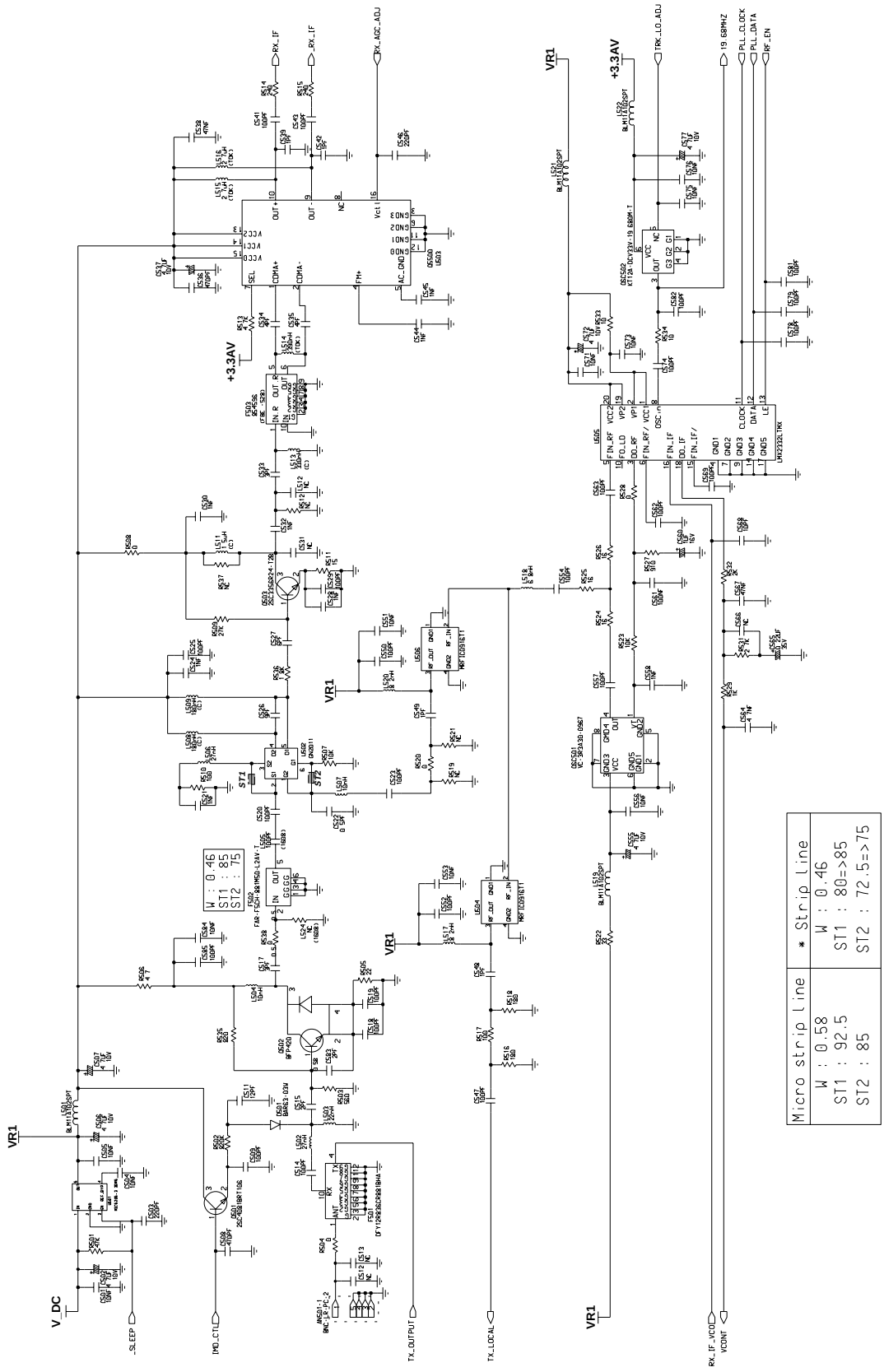
MEMO

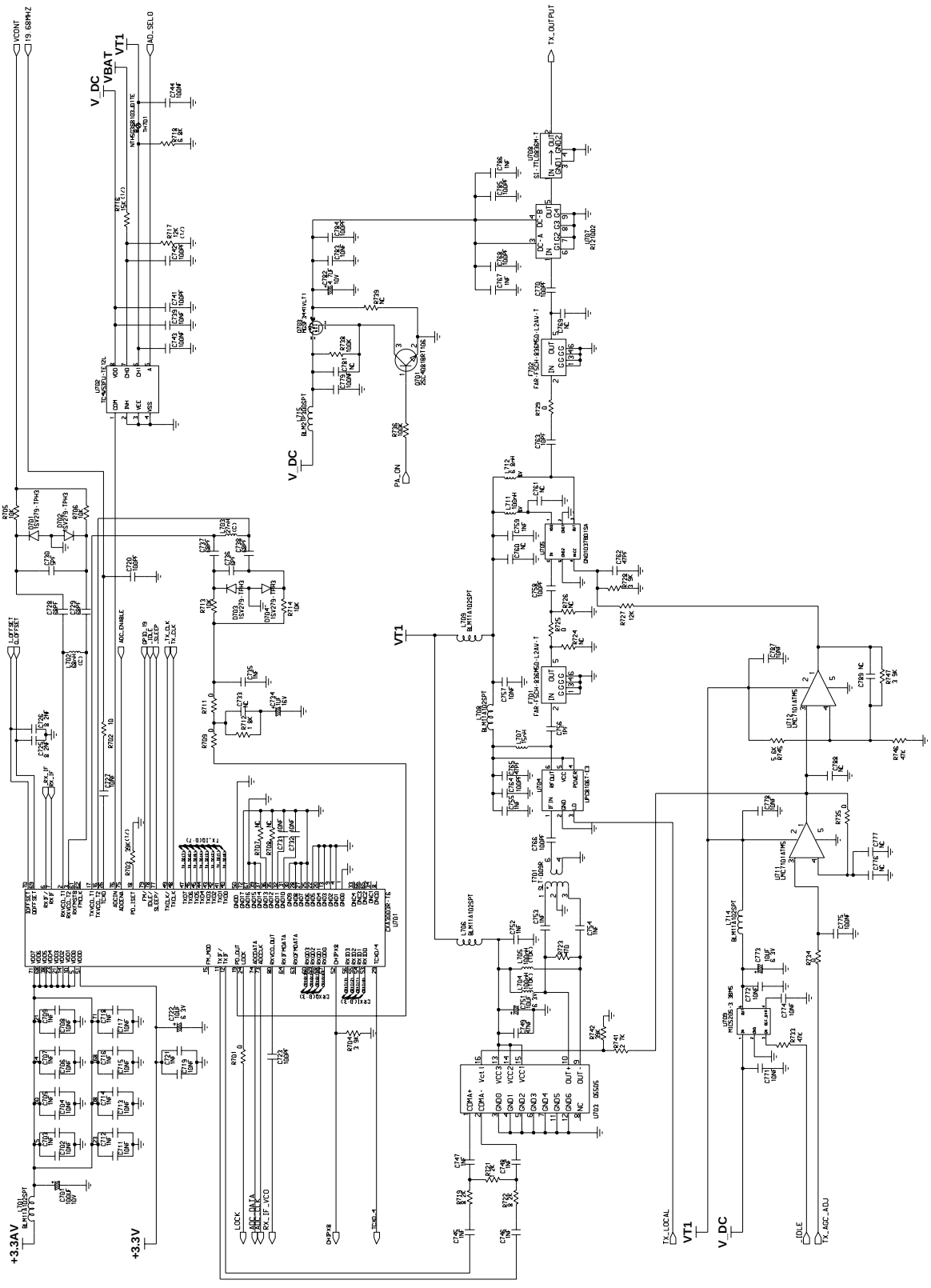
10. SCW-F200 Block & Circuit Diagrams

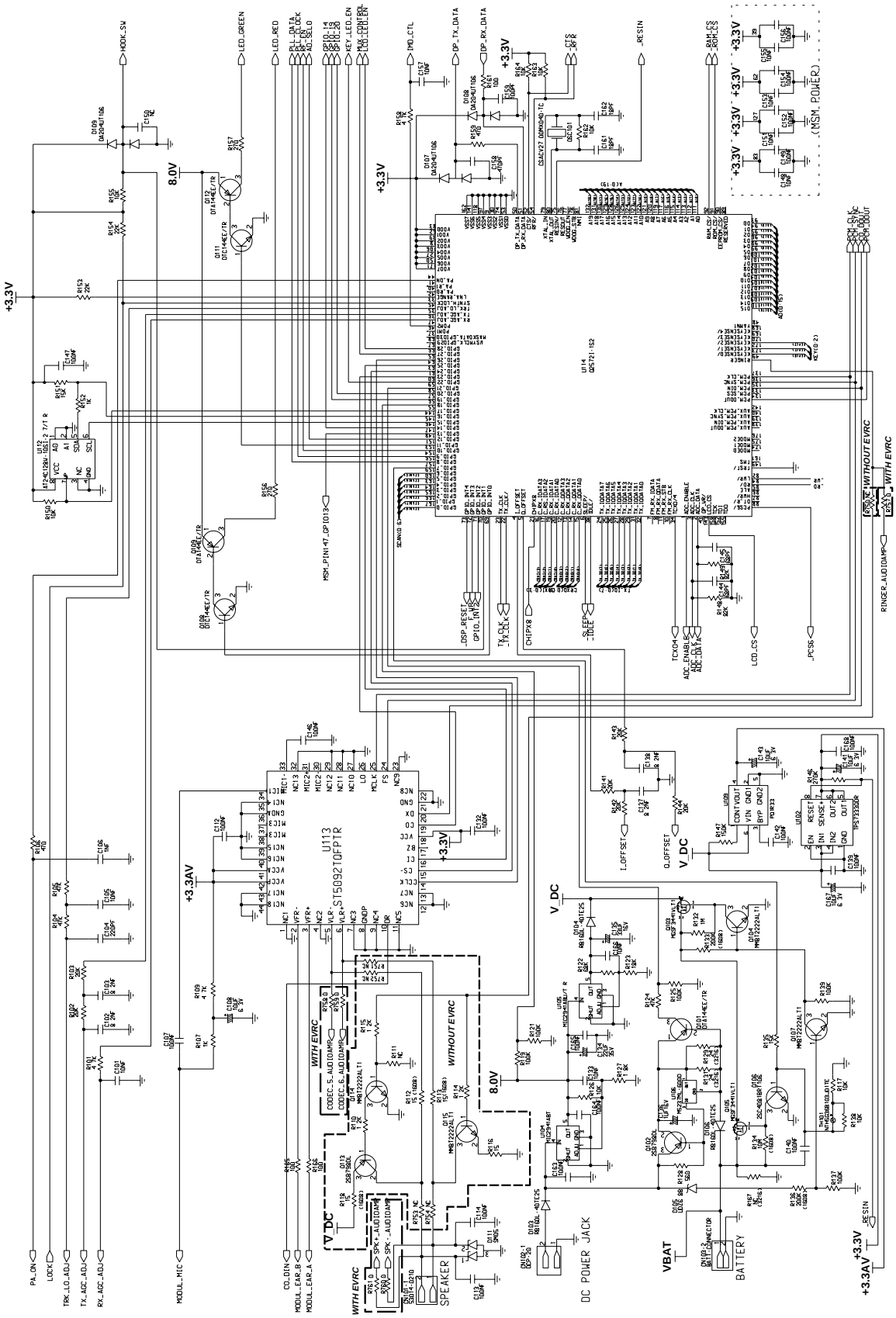
10-1 Main Block Diagram

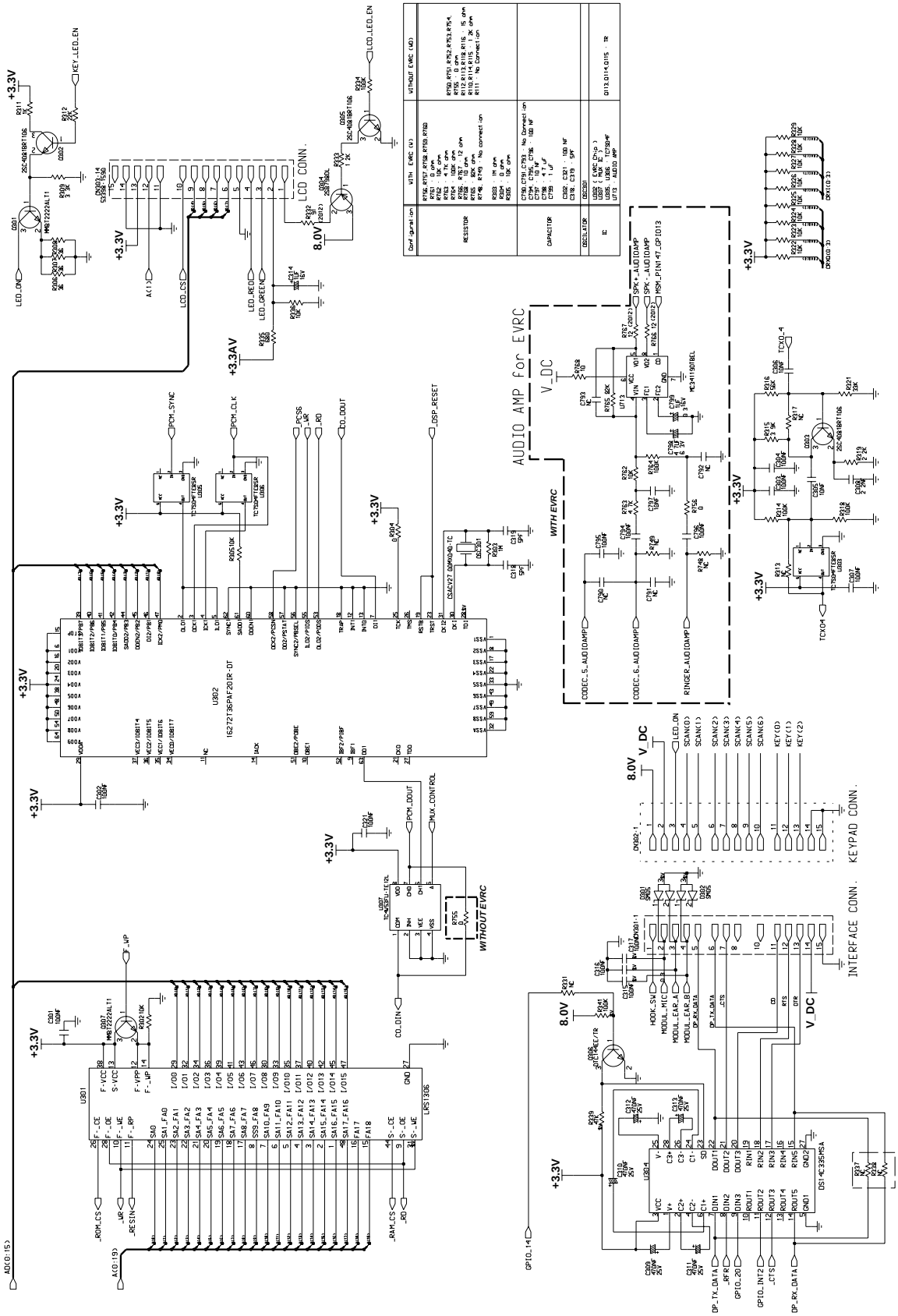


10-2 Circuit Diagrams








AUDIO AMP For EVRC
WITH EVRC
WITHOUT EVRC
INTERFACE CONN. KEYPAD CONN.
LCD CONN.
U302
162721636PAF201R-DT
U301
LRS1306
U304
DS1 4C335MSA
U305
MC34119DTBEL
U303
TC7SHFTEGSR
U306
TC4SU1GTCR
U307
TC4SU1GTCR
U308
TC7SHFTEGSR
U309
TC7SHFTEGSR
U310
TC7SHFTEGSR
CODEC_5_AUDIOAMP
CODEC_6_AUDIOAMP
RINGER_AUDIOAMP
V_DC
+3.3V
+3.3AV
8.0V
AD(0:15)
AD(0:19)
LED_ON
LED_RED
LED_GREEN
LCD_CS
KEY_LED_EN
LCD_LED_EN
PCM_SYNC
PCM_CLK
PCM_DOUT
CO_DOUT
CO_DIN
MUX_CONTROL
DSP_RESET
_PCSS
_WR
_RD
_ROM_CS
_RAM_CS
_RESIN
F_WP
GP10_14
GP10_INT2
GP10_20
DP_TX_DATA
DP_RX_DATA
_RTS
_CTS
SPK+_AUDIOAMP
SPK-_AUDIOAMP
MSM_PIN147_GPIO13
LED_ON
SCAN(0)
SCAN(1)
SCAN(2)
SCAN(3)
SCAN(4)
SCAN(5)
SCAN(6)
KEY(0)
KEY(1)
KEY(2)
HOOK_SW
MODUL_MIC
MODUL_EAR_A
MODUL_EAR_B
DP_TX_DATA
DP_RX_DATA
_RTS
_CTS
CD
RXD
DTR
DKM(0:3)
TCXO_4
TCXO4
Conf igurat ion
WITH EVRC
WITHOUT EVRC
RESISTOR
CAPACITOR
OSCILLATOR
IC

3. Data Transfer program

When the main board of a customer's cellular phone is required to be replaced with a new one, or the customer is needed to use a phone lent from the service center while his phone is serviced, this feature is used to transfer(copy) all the EEPROM data of the customer's phone into the new board or the lent phone to keep the information the customer had stored into his phone personally.

3-1 Getting Started

1. Run the DTRANxx.EXE file. If you run the file for the first time, the message 'INITIAL FILE IS CREATED' appears. Do not delete the created file because the file creates DTRANxx.CFG to store environment setup data. The message does not appear once you have run the program.

2. Press any key to go to next procedure.

Function Keys

Fl	Reads EEPROM data from the customer's cellular phone.
F5	Writes the data of the customer's phone into the EEPROM on the new board.
ALT+X	Exits programming and returns to DOS mode.

3-2 Operation Procedure

1. On standby mode, 'Please check the communication link between your PC and the phone prior to beginning ...' messages appear on the screen. You are ready to transfer data.

2. Switch the phone power on after you have run the program.

3. Press <F1> key to read EEPROM data from the customer's cellular phone. On screen, 'Change the mode of the phone from HANDS-FREE mode to DM mode' message appears. On the LCD display of the phone, 'AUTO TEST' and 'WRITE EEPROM' messages appear. If the phone is already in DM(Diagnostic Monitor) mode, the message does not appear.

4. After the mode is changed to DM, EEPROM data on the cellular phone is read by PC. You can monitor the reading procedure on the screen.

5. When the data reading is completed, 'Replace the source phone with the target phone and press <F5> when ready' message appears on the screen.

6. Press any key to clear the message. The cellular phone displays 'DELETED' and '300-300-3000' instead of greeting and phone number respectively. All the features of the phone including ESN are reset to default status, and the phone can not be operated.

7. Remove the phone from the test jig and connect the new phone to the test jig.

Caution: If you try to perform reading again without writing after reading is already done once, the error message 'READING FROM THE PHONE WAS ALREADY BEEN CARRIED OUT, WRITING SHOULD BE CARRIED OUT' appears on the screen.

8. Press <F5> key to perform writing EEPROM data. You can monitor the writing procedure on the screen.

9. When the data writing is completed, the phone will reset. The program returns to standby mode and is ready to read data from another phone. 'WELL DONE, DATA TRANSFER IS COMPLETED' appears on the screen.

10. Check if the transferred EEPROM data is the same.

MEMO